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Medical Times

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In This Issue

Group Medicine

William Latbrop Love, A.M., M.D.

Notes on Internal Medicine for the General Practitioner

Malford W. Thewlis, M.D.

Some Rural Problems in Infant Feeding

A. L. Horton, M.D.

The Doctor and His Cook

Frederick B. Kilmer, Ph.M., Sc.D.

Human Death

(Concluded)

Meningitis and Endocarditis

(Concluded)

Complete Index to Reading Pages on Page 15

SEPTEMBER, 1928

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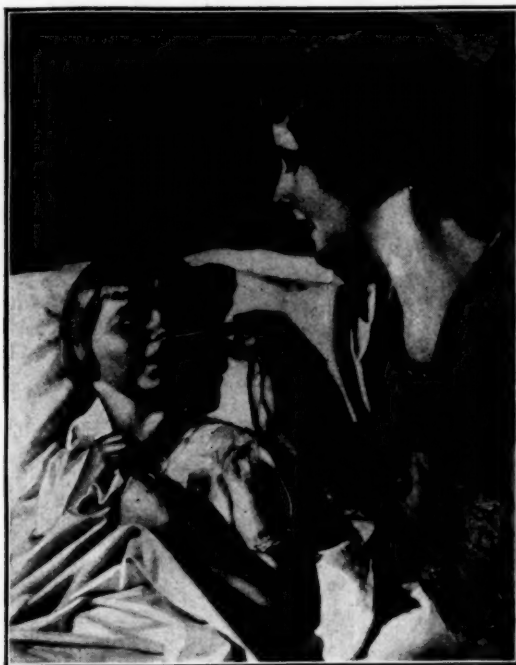
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Group Medicine

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In my opinion we are rapidly approaching the era of Group Medicine. It is the natural sequence of events since the World War. At that time many a country doctor was happy in his home environment in his little sphere on "Main Street." The lure of the Big City was an unknown quantity. He was the "big fish in the little puddle," contented, prosperous and happy. Then the call came, and he left his practice and went to the Colors. After this experience that some of the unsung heroes of our medical profession had, life became a different thing altogether. When the war was over the doctor had a new vision, a new perspective. Quite likely he came out a specialist in certain branches of surgery or the X-ray or some other specialty. He had to be re-allocated. He couldn't go back to the old way of doing and living—he was transformed.

Ten years have elapsed and at this time I venture to say without fear of contradiction that a good proportion of the leading specialists of the various cities throughout the United States are the direct product of a new environment due to the World War.

Indeed, from an economic standpoint it seems to me that we are approaching a crisis in the health and sanitation of our State. Many and many a prosperous village or small community is offering financial inducements to a doctor to come and locate within its borders. Really, if we should have another epidemic of la grippe or something of that sort, I don't know what would happen in many communities. People would be panic-stricken with no physician to go to for miles around. This is going to be a *great medical problem of the immediate future.*

With this paucity of country doctors, however, there

has come a corresponding plethora of aspiring medical men in the great cities. It is tragic to see, in the vicinity of the various city hospitals and medical centers, the rows and rows of doctors' signs. How many a fellow who could be prosperous and happy, with a sure income, in a small country town, is housed with his wife and family in a dark, often ill-ventilated apartment in every one of the great cities of our Union.

We are in an era of specialists, and specialism is being largely overdone. Too many young men want to become surgeons. There is a great opportunity to be a specialist in family practice. But the net result of all this is to emphasize the fact that a partnership is just as desirable in the practice of medicine as it is in the practice of the law. No man can work seven days in the week without let-up for any continuous length of time without paying the penalty. The fairly well-to-do lawyer takes frequent week-ends in making little trips with his family. He takes a winter vacation at Palm Beach, or motors through the South, and his partner attends to his practice. The doctor of equal standing feels that it is essential to his success to be on the job seven days in the week. Which of the two men is the healthier and more capable of functioning with 100 per cent efficiency fifteen years after graduation from college?

In my next article of this series on "Problems of the Medical Profession" which I have been invited to write for this journal I will discuss the advantage of partnership among physicians, the same as pertains in business or in the legal profession, from the standpoint of economics, health and general happiness.

122 Remsen Street.

Notes on Internal Medicine for the General Practitioner

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New York.

SKIN ERUPTIONS FROM BROMIDES—A skin eruption due to bromides or other drugs may persist for a long time after the drug has been discontinued.

FOOD ALLERGY—Neurological symptoms are not uncommon as a result of food allergy. There may also be ocular or pharyngeal symptoms as well as gastro-intestinal symptoms.

SYPHILIS AND PULMONARY TUBERCULOSIS—We may get a combination of these two diseases. On the other hand we may find syphilis of the lung simulating pulmonary tuberculosis. It is not safe to rule out pulmonary tuberculosis until a dozen negative sputums are obtained. Even then we must be sure that the secretions are not from the throat. When we have a combination of pulmonary tuberculosis and syphilis we must proceed with caution. The iodides are dangerous and although arsenobenzol is dangerous too it is the best remedy we have.

FOCAL INFECTION AS A CAUSE OF EXHAUSTION—Prolonged focal infection may cause asthenia either before or after the removal of the foci. In middle age and old age the removal of foci of infection is followed by a period of convalescence lasting from six months to two years. It requires this length of time to repair the damage already done by the infection. Sometimes the condition is beyond repair. After the removal of the foci the patient should have special attention; the attending anemia should be corrected by intravenous injections of iron and arsenic; the patient should have a diet well selected for calories and vitamins; deep breathing exercises and exposure to sunlight or ultra violet radiation; rest periods after meals and also later in the afternoon. Special care should be given to proper elimination through the gastro-intestinal tract but saline laxatives should be avoided because of their depleting action.

Asthenia following the removal of foci of infection is often severe and the patient may suffer from what is commonly called "nervous exhaustion." It may tax the skill of the physician to bring the patient back to a normal condition. Frequently in old age it is even advisable not to remove foci because the patient may react badly to the procedure. The individual case must be studied.

DANGERS OF REMOVING FOCI OF INFECTION—The extraction of an infected tooth should be a surgical procedure. The tooth and gums should be as clean as possible before the extraction and antiseptic care should be given after the tooth has been removed. It is not uncommon for arthritis to follow extraction of teeth; nephritis, endocarditis, endarteritis and other conditions may also result. In old age particularly is this apt to occur. On the other hand, the great number of patients benefited by the removal of foci is too great to deprecate the procedure in old age. I merely sound a warning that we must proceed with care in advanced age.

UREMIA—A diagnosis of uremia is justified only when examination of the blood shows nitrogen retention.

BLOOD URIC ACID—Blood uric acid estimations are of little value in medicine; increased uric acid is not always a sign of incipient nephritis.

METASTATIC CARCINOMA—Metastatic carcinoma may involve the brain substance or may affect the meninges.

RÂLES AT THE BASES OF THE LUNGS—Râles at the bases of the lungs frequently exist for years without any evidence of tuberculosis.

ANEMIA DUE TO INFECTION—Anemia due to infection may have many symptoms in common with pernicious anemia. A blood culture should be made to determine if streptococci are present. Anemia associated with chronic nephritis or endocarditis seems to be unaffected by iron medication.

BLOOD PRESSURE ESTIMATIONS—It is not infrequent to find that the systolic blood pressure varies at different times of the day and on different days. We may see a variation of 20 or more millimeters of mercury during twenty-four hours. This may be due to the excitement of having the blood pressure taken. In a nervous patient the variations are often considerable. Before condemning a patient to a hypertension regimen, with its attending deleterious effect on the patient's mind, it will be well to take the pressure on different days and strike an average. To do the patient justice we should be careful of our technic. The patient should rest for twenty minutes in a quiet room—a preparation comparable to that used for basal metabolism estimations. The pressure should be taken with the patient in the recumbent position and also while sitting in a chair. Both arms should be used as there is often a wide variation between the two. In Dr. Babinski's clinic both legs are used as well as both arms. If an aneroid apparatus is employed it should be checked often with a mercury sphygmomanometer. Errors due to haphazard methods of estimating blood pressure are costly to the patient.

ARTERIAL HYPERTENSION DUE TO INFECTED TEETH—Infected teeth, as well as other foci of infection, may cause arterial hypertension. Some patients react badly to a very small infected area while others show no abnormality as a result of a large area of infection.

EPITOME

1. Drug eruptions persist for a long time after discontinuing medication.
2. Food allergy may cause neurological symptoms.
3. Lumbar puncture should be employed in treating encephalitis lethargica.
4. Syphilis and pulmonary tuberculosis may be combined or syphilis of the lung may simulate tuberculosis.
5. Focal infection often causes "nervous exhaustion."
6. We must proceed with care in removing foci of infection in old age.
7. When blood examination shows nitrogen retention we may make a diagnosis of uremia.
8. Metastatic carcinoma may affect the brain or meninges.
9. Râles at the bases of the lungs are often not due to tuberculosis.
10. Anemia due to infection may simulate pernicious anemia.
11. Blood pressure estimations require special technic.
12. Arterial hypertension is often due to infected teeth.

114 East 54th St.

Some Rural Problems in Infant Feeding

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Taylorsville, Georgia

We read much in our medical magazines and journals about infant feeding. It is all very interesting and no doubt makes all of us wish at times that we lived in the great medical centers where we could secure for our little patients just such milk modifications as recommended in these splendid articles. The only objection I have ever found to such papers is that they seem to be written for a very small minority of the physicians and their patronage of the country.

What do we expect to gain by reading a paper advising the use of Walker-Gordon Laboratory milk? We would have to move to such cities as New York and Boston to get it and then it is not available for the poorer classes, which contribute the bulk of our work. I have no fight to make on this milk, except I never expect to be able to use it.

There has been so much said about CERTIFIED milk that the mothers very often will phone all the dairies in the community in an effort to locate a dairy which supplies this type of milk. I also have no fight to make on this milk. I believe in clean milk above all things. If milk is truly certified it should be cleaner than the average milk. I am convinced that much milk which is termed certified milk is not entitled to that rating. There are very few dairies in this state which even claim to put out a certified milk. Suppose I could get certified milk to use among my patients, how long could I depend on keeping it at that standard after delivery to the home of my patient?

Milk should by all means be sterilized or pasteurized before giving to an infant. Raw milk is looked upon as taking too much risk of infection, but after the milk is sterilized or pasteurized and is made safe for use how long will it remain safe if not kept properly iced? Some of the mothers where I have been called seem to be under the impression that when milk is sterilized or pasteurized that it can be left on the table, placed in the cupboard or put in the spring and it remains safe milk. The fact is as I have been informed, milk should have one or the other of these precautions, but it must also be remembered that after milk is pasteurized or sterilized it spoils quicker than raw milk if not kept in constant contact with the ice and below 50 degrees Fahrenheit.

The man who has only practiced pediatrics in the city where ice wagons drive by the door several times a day and where there are many homes provided with frigidaire outfits cannot very easily put himself in the place of the great majority of the physicians of the country where such conveniences are not possible. Many rural homes never see ice the whole year unless they are going to have a family picnic and serve cold lemonade and ice cream. Ice wagons do not pass their doors and they have no time to run to the ice factory every day for ice. If they have a sick infant and the doctor tells them they must have ice to keep the milk safe, they will keep a small block and perhaps half of the time not be enough to even keep the milk cool, to say nothing of below a temperature of 50 degrees. The well or the spring with its water of approximately 60 degrees is about as cold as the average family in the rural communities is able to get and keep milk.

The industrial class has a very similar experience with milk. Some of them buy milk from dairies, others get it from some neighbor who sells it a little cheaper.

The milk is kept poorly iced only part of the time, consequently the baby drinks spoiled milk and if the warm days have begun it is likely to cause severe gastrointestinal disturbance and perhaps the death of the baby. So long as the milk does not taste sour, the average mother thinks it is all right for the baby.

Another habit with many mothers of the rural and industrial classes is feeding very young babies domestic buttermilk. This is a very risky piece of business and any physician should give his approval to such a practice very cautiously. Mothers will sometimes give rotten buttermilk to babies under six months of age. Their stomachs become dilated and their abdomens enormously distended, yet the general development of the child is below par.

During all my professional life I have been trying to find some way of giving milk safely to all classes, regardless of climate, location or pecuniary circumstances, especially have I been trying to get something suitable for the neglected classes, which I term the rural and industrial population. For several years I have been using dry milk in my practice. I watched the results of others for quite a while before I made a venture. I studied dry milk and read what some of our leading authorities had to say in its favor. I could not see why milk minus its water could not at the time it is needed be reconstructed by putting the same amount of water back to it which had been removed and it remain safe milk. I could not see why there could be the slightest danger of using spoiled milk, inasmuch as after the water is removed there is no tendency for it to encourage bacterial invasion. It only gets the water added to it just before each feeding, so one should feel absolutely assured of giving clean and wholesome milk.

There are various dry and powdered milks on the market put out by various producers. I have used them with a very large number of young children with very happy results and must confess that I have yet to find a case which has been fed strictly on dry milk where the results were not highly satisfactory. Another factor which I like about dry milk is that much of it is now treated with the ultra violet ray before leaving the factory which is said to greatly increase its anti-rachitic properties. The following statement of Dr. Hess appeared in the *A. M. A. Journal*, issue of July 30, 1927, relative to irradiated dried milk: "Irradiated dried milk, when fed to infants in the customary amounts, is as potent and anti-rachitic as cod liver oil."

I have been using dry milk in my practice for several years and have thus far failed to find a case of rickets among those to whom I have fed it. I am convinced that it not only prevents rickets if used properly, but in many cases will actually cure such a disturbance of metabolism if irradiated dry milk is used in making up the formulae.

I have had excellent success in feeding dry milk to premature. In such cases I usually take one level tablespoonful of the powder and add enough boiled water to make 1½ ounces. I discard the half ounce and give the premature one ounce of the mixture every two hours until the baby has reached the age and weight of a full term baby at birth. I then give the feedings like I would any other newborn, that is one level tablespoonful of dry milk to 1½ ounces of boiled water and give a feeding every three hours. Every two weeks I increase the dry

milk one-half level tablespoonful and increase the water one-half ounce until the baby is six months of age, when I use the same number of tablespoonfuls of dry milk as ounces of water and begin feeding thin well cooked cereals and orange juice. Many begin giving cod liver oil at this age. There is no harm in it, yet it is the opinion of some that if dry milk is irradiated there is no need for cod liver oil, inasmuch as the violet ray has done what the cod liver oil is expected to do.

The above key to making a schedule for a baby is very simple and with very little thought any physician can direct the proper feeding of a baby on dry milk. The matter may be understood better by saying that as a rule I give one level tablespoonful of dry milk to baby for each month of age plus one extra level tablespoonful for each feeding and use one ounce of sterile water for each tablespoonful of dry milk plus one half ounce of water for each feeding. Dry milk readily mixes with hot water, but it makes a smoother milk to first mix with enough hot water to make a thin paste, and then add the required amount of water.

The guiding factor in favor of dry milk, as I have

found, is that it is dependable for safety, any child of school age can easily be taught to prepare proper feedings, no ice is ever needed to protect its safety and babies usually like it, and the best of all they thrive on it and have very little intestinal trouble if the mother will use only common sense care. I have never observed any bad effects to follow dry milk feedings. I don't mean to say that dry milk is a panacea for all feeding cases, but I do believe that if we take into consideration its safety, simplicity and the good results which follow its use that we shall find it superior to any other method of administering milk in feeding infants, and especially do I believe that it is the most ideal milk for meeting the feeding problems of the rural and industrial population.

In this paper no reference is made to the feeding of infants on condensed milk, for the reason that practically all physicians at this period in the progress of infant feeding, have reached the conclusion that condensed milk has no place as a permanent feeding for babies, inasmuch as it is unbalanced, predisposes to many nutritional disturbances and is not dependable for safety.

Human Death

An Analytical Study

DR. ARTHUR MACDONALD

Washington, D. C.

(Concluded from page 216 of the August issue)

VII—Causes of Death

Though the usual cause of death is failure of the vital centres, which govern heart beats and breathing, the real question is the cause preceding this failure.

According to Rogers (Paris), death is due to a general disturbance affecting the function of the cells, which counts in an arrest of cellular nutrition. This may be caused by nervous shock; noxious products are retained in the cells, and there is no chance of renovation. Generally death occurs from waste products in the humors which stop nutritive changes.

Some general causes of death are: (1) Mechanical disorders or barriers, (2) Lesions of an important organ, and (3) General infection or intoxication. In laryngitis from diphtheria, the false membrane developing in the larynx hinders passage of air and may cause death, mechanically and by reflex spasm which it excites. Cellular lesions are in certain cases too limited to account for marked influence, toxic action is necessary, but this does not kill rapidly. A certain length of time is necessary.

Death in its mechanism is not due to any apparatus, but as just indicated, to a general disturbance in the cells and an arrest of their nutrition. In most cases, death occurs because waste substances accumulate in the humors and stop the nutritive changes. As in lesions of liver and kidneys; so when death is said to occur from these organs, it means that there has been auto-intoxication of the organism, as the result of their disorders. So when there is an arrest of the heart—syncope or asphyxia—death results from a lack of organic purifying—the blood, during cardiac arrest, carries no nutritive substance to the cells, and cannot rid them of useless matter. In asphyxia the absorption of oxygen, or rejection of carbonic acid, does not occur. Therefore, the

lesion or suppression of an organ does not explain death. Cellular nutrition means life, its suppression death.

Overeating would seem to be a general cause of death, for, according to certain specialists, the accumulation of waste products in our bodies gradually embarrasses its life functions until this waste matter cannot be thrown off, and as a result the organic action is clogged and finally stopped, which means death. As has been said, very often we dig our graves with our teeth.

There are considered to be fourteen principal causes of death: Pneumonia, consumption, heart disease, diarrhoeal diseases, kidney disease, apoplexy, cancer, bronchitis, cholera infantum, inflammation of brain and meninges, diphtheria, typhoid fever and premature birth. It is estimated that 68 die a minute, 97,920 a day and 35,740,800 a year.

Cessation of circulation, through various diseases of the heart and great vessels, is a death cause; also cessation of respiration, by suffocation or strangulation and other active causes. Deficient nutrition, produced by albumen (inanition) or by water or from weakness or old age is a death cause; also extreme or long continued elevation or diminution of the temperature of the body.

Death of Cells: Those having highest functions are affected first in death, that is the nerve cells.

Death may come from infections as from intoxication; the microbial poisons accumulate in the organism, and hinder or prevent normal cellular life.

1. Death from failure of nutrition:

Here death may be due to simple starvation, or to actual want of food due to obstructive diseases of oesophagus, or cardiac orifice of the stomach or persistent vomiting or diarrhoea, or to any other obstruction of the digestive track, which interferes with nutrition; or to diabetes, or rapidly growing malignancy.

nant tumors, where there is misappropriation of nutriment received into the blood, or to inflammatory processes, or febrile disorders in which excessive waste of tissue occurs, without equivalent reconstruction, or lastly to continuous wasting discharges or loss of blood.

The symptoms preceding death here are increasing emaciation and debility, mental languor, feebleness of circulation, and lack of resistance to external cold. The patient probably lies on his back, motionless or almost so, with more or less cold hands, feet and ears dusky; breathing freely and at long intervals, with pulse hardly perceptible at the wrist; sensible, but dull and languid, paying little attention to anything (allowing escape of evacuations). This general feebleness passes almost imperceptibly into death, the last indication of life being the very faint heart movement.

2. Death caused by failure of circulation:

Most commonly the failure takes place at the heart, which ceases to propel the blood. Death may be sudden, the patient fainting and falling down, with a gasp or convulsive tremor. Death may be less sudden, the victim getting pale, cold, perspiring, insensible or nearly so, with slow, shallow or gasping respiration, extreme feebleness of heart and imperceptible pulse.

When death from failure of circulation takes a chronic condition, the phenomenon of collapse are always present in various degrees.

Death from failure of elimination of effete and poisonous matters: The poisonous matters are carbonic acid, evolved by the lungs, urea and other nitrogenous elements, and some constituents of the bile, sometimes absorbed into the circulation. The retention of carbonic acid in the blood causes asphyxia; when sudden the symptoms are those of drowning, or choking from the intrusion of a solid mass into the upper part of the larynx: dyspnoea is extreme and violent, soon vertigo ensues, respiratory agony diminishes, breathing efforts are less violent, gradually unconsciousness supervenes, convulsive movements may occur, and in a few minutes all muscular action ceases; the heart beats a minute or two after respiration stops. There is more or less distressing dyspnoea and anxiety, but gradually the struggle for breath grows less painful and violent, patient becomes drowsy, and rambles, and passing into coma and general debility, sinks.

Death from failure of nervous system to function: Coma frequently precedes death where primarily the brain is not involved; it is also a common sign of serious cerebral lesions (hurt, wound, local degeneration). In coma there is profound unconsciousness, slow, irregular and stertorous breathing; saliva and other secretions from mouth, throat and air tubes accumulate and are not expelled, and through stoppage of breathing death ensues by asphyxia; also spasm motor paralysis may cause asphyxia; in epilepsy spasm of the glottis; in tetanus, spasm of respiratory muscles may cause the same; a like result may come from paralysis of muscles of throat, larynx and chest. Haemorrhage may lacerate the soft brain tissues, an enlarging cavity is formed which is filled with blood at nearly arterial pressure; the larger such cavity grows, the greater the blood pressure and vice versa; the vaso-motor center is exhausted, the visceral area fills with blood causing cerebral and cardiac anaemia, further exhausting the center. The normal blood pressure (venous pressure—little above zero); cerebral hemorrhage tends to raise intra-

cranial pressure to nearly the arterial pressure and thus squeeze the blood out of the vaso-motor centers.

These general causes of dying described above, or groups of processes causing death, if compared, have much in common and tend to shade into each other; thus death from coma or tetanus spasm, eventually culminate in death by asphyxia, and death from asphyxia into death from arrest of circulation, and this arrest of blood circulation into spasmodic and insuperable contraction of the pulmonary arterials which depends upon the vaso-motor nerves.

Death from freezing: the nervous system gradually decreases in excitability; the victim becomes benumbed, is overcome by drowsiness which he cannot resist; sight grows dim, apathy goes over him, he staggers and falls into death sleep.

Death in Angina Pectoris: Men over 45 or 50 are not frequently affected; the attacks of pain may be induced by mental excitement or strain, exposure to cold and wet, by fatigue, by dyspepsia especially with dysintery or constipation. Tobacco, tea, coffee or alcohol are harmful. The lesions of the aortic valves and coronary arteries explain the fatality of the disease. Angina pectoris is peculiar to the well-to-do; in charity hospitals it is almost unknown. Anatomical evidence is necessary in addition to clinical in finding causes of death.

VIII—Sudden Death

Death is generally progressive, but sometimes sudden: thus aortic insufficiency may cause death at any moment, yet a patient might live with this danger, 10, 20 or 30 years.

Transition from life to death may be sudden, as lightning, sunstroke, bruising or lacerating, gunshot wounds, during birth or confinement; in severe operations; in intoxications; in enormous internal hemorrhages. In such cases, often the attitude of body and facial expression are just as they were at death.

In weakened persons, in convalescents from prolonged severe diseases, in certain diseases of heart and brain, sudden death may occur.

A rapid death is frequent in the earliest years of life, is very rare from the first year to complete puberty, then increases in frequency with each year of life up to age 50, and also occurs in most advanced age. It seems to be once again as frequent in males as in females; it occurs more frequently in daytime than at night, and more common in winter than in summer; it is more apt to take place shortly after meals and during defecation.

Death takes place suddenly only when the heart or brain is injured in certain parts.

Sudden death in apparently good health is due to renal, arterial sclerotic diseases, diabetes, etc. In 8 to 10% of sudden deaths, the cause is not found (Brouardel). Except in the extremes of life, there are really no causes in a healthy person to lead to sudden death.

The shock from joy, fear, anger or anxiety may cause death? Emotional excitement affects especially unstable nervous systems, or those with organic diseases, where the heart or great vessels are involved. Fatty degeneration of the heart is the most frequent cause of sudden death (Robertson), and in such cases extreme care in intimating sad or bad news is very necessary syncope may follow. Thus, the announcement to a woman that her husband had just been killed caused her death at once; she already had heart disease.

Anger may make a man white with passion; the

cutaneous blood vessels contract, increasing the volume of blood circulating through the heart and brain; at the same time blood-pressure is increased, and blood vessels may give way or the heart, if diseased, be ruptured. In old age syncope is especially dangerous, also in persons getting up for the first time after severe illness, as pneumonia or after an operation, even minor operation if patient has hemophilia. Vagus inhibition can cause sudden death.

Sudden deaths in early infancy are frequent. After a hearty meal, the child is in difficulty, agitated, agonizing; in the midst of its tears, it throws its head back, becomes cyanotic, breathes loudly and expires. In the autopsies there is almost certainly a large thymus with a developed lymphatic system.

Main causes of sudden deaths are: Cerebral hemorrhage, rupture of gastric ulcer; valvular heart diseases, especially aortic; angina pectoris; rupture of an aortic aneurysm; suffocation in epileptic fit, shocks of electricity, sunstroke, mental or physical shocks; diabetic coma; uremia; exertion on an overloaded stomach.

Pain to be felt requires time; so that deaths by violence or otherwise sudden are practically painless. In old persons coronary obstruction, due to sclerosis, gradually reaches the point, where the lumen of the arteries is narrowed, weakening the systole, and sudden death comes. In angina pectoris, there is always a strong probability of sudden death (Hubbard).

The chief factor (Westcott) in sudden death is cardiac in 60 per cent of cases, cerebral in 30 and pulmonary in 10 per cent.

In sudden and profuse hemorrhage, where the heart may be right, there is not sufficient blood for its chambers.

Death in Sunstroke: Heart action fails, pulse flutters, irregular breathing, varying from a few minutes to a few hours; occasional convulsive movements of the extremities, bring in complete coma, the patient gradually sinking into death.

In 1917-1922 five per cent of all deaths were sudden.

SUDDEN DEATHS (Schneider, W. H., Berlin) 1912

	No.	Per cent
Disease of the cardiac vessels.....	57	39
Including: Coronary sclerosis	19	13
The breathing organs.....	19	13
Embolism	8	6
Pneumonias	7	5
Status lymphaticus	16	11
Injury of central nervous system. .	15	10
Uremia	5	3
	146	100

IX—Vicious Circle and Death

Vicious circle in disease is circular reaction, reproducing the conditions of its own stimulation. Vicious circles destroy organs, perpetuate disease and cause death. This circle usually arises from disorder in other or parts of other organs, the reaction of which aggravates the original disorder. This evil is encouraged by specialization of structure and function, and occurs in the higher members of the vegetable and animal kingdoms.

Thrombosis: If not at once fatal, the thrombus or embolus may cause eddies and obstruction, increasing the clotting, which adds to size of thrombus, thereby increasing the obstruction (vicious circle).

Rupture of heart: As the strain on the surface of a sphere increases with its circumference, so when the

heart swells the greater the strain on its walls, which leads to further swelling and sometimes rupture.

Death in respiratory system: Asphyxia causes increased blood pressure, slows the inhibitory centres in medulla, the right heart is gorged with blood and weakened, leading to further venosity and further dilatation, a vicious circle, leading to death.

Atelectasis (imperfect expansion) of lungs may be fatal in weak or rickety children: accumulation of secretion lessens air for the air cells, causing further accumulation; necrosis of respiratory center appears, leading to a peaceful painless death.

Naemoptysis (spitting of blood), induces cough, which raises blood pressure, renewing hemorrhage, thus one may choke in his own blood, or may cough himself into his grave.

Lack of nutrition weakens the heart muscle, which dilates and increases venous congestion, which in turn increases the weakness again.

Heart failure is one of the commonest modes of death. Thus acute dilatation weakens coronary circulation so that the myocardium is deprived of much blood; the less the blood the feebler the systole and *vice versa*. Thus Eucles raced to Athens, with the Marathon news, and when shouting he dropped dead. It is probable the long strain caused dilatation and finally syncope (Hurry).

Coma is often due to high intracranial pressure, causing respiratory difficulties, lowering or abolishing the reflexes; saliva, food and drink collect in the trachea, hamper respiration, causing nervous engorgement which in turn increases intracranial pressure.

The three usual modes of dying (brain, heart, lungs), seldom and only in sudden (rapid) death occur in pure forms. Thus in slow death, interference with the circulation alters the composition of the blood and disturbs circulation in the central nervous system, which in turn impedes respiration and both together diminish the heart's activity.

X—Deceptive Death Pause

It often occurs, at the end of a disease that delusive symptoms come up, with which the issue of the malady does not agree, as in long resistance of the constitution to the disease, where there is a pause and the disease has done its worst. This placid condition is construed to point to recovery, whereas it is a beginning to die. This delusive symptom may take place especially in inflammation of the brain, in partial inflammation of the intestines, where a hernia produces strangulation; also in abscess of the liver, connected with gall stones, there will be an intermittent time or pause, which might be treated to avoid the return of the paroxysm, which is based upon misconception. In advanced stages of dropsy of the chest, there is a mitigating pause in the difficulty of breathing, with swelling of the legs, which, if it disappears without increase in urination is a deceptive sign.

A young man took cold while under the influence of mercury; the disease increased, until it was accompanied by so strong a fever that personal restraint was necessary; at length he ceased to rave and was calm; he asked if he could live. On being answered tenderly that it was probable that he might not, he wrote affectionate letters to his friends and set all his business matters in order, and died the next night. His apparent improvement was not preceded by sleep, or a slower pulse; it was merely a cessation of excitement, caused by less energy; it was a fictitious improvement.

XI—Death Delirium

Death delirium is often manifested in quiet talkativeness, which becomes a low muttering. Some are thinking of events in childhood and early life, but in more active delirium, ideas relate to subjects perused in professional or business life. Lord Tenterden at first was incoherent in his delirium, later became composed and, raising his head from his pillow, said: "And now, gentlemen of the jury, you will consider of your verdict"; these were his last words, after which his head sank down, and in a few minutes he was dead without a groan.

Sometimes delirium ceases, and the mind again becomes clear and sensations keen, but followed by a return of delirium, or of coma, or a rapid sinking and quick death. Yet along with this mental improvement, bodily failure is plain, as shown by pinched features, coldness of surface, cold sweats and feeble rapid pulse.

XII—Death Bed Illusions

The emotions of the dying are very often caused by the nature of the disease itself. Thus, all mental impressions are affected necessarily; they are very often delirious, due to the excited state of the brain and nervous system; confessions are not to be depended upon, as the mind is very weak and easily affected by immediate surroundings. A doctor who was treating a doctor friend, states that his patient was so near the end, as the death rattle indicated, yet he succeeded in saving him. But when his doctor friend came to realize that he was getting well, he was dissatisfied if not angry, saying that he was all ready to die, had made his will and other arrangements, and now it would not be long before he would have to "do this all over again".

In taking anaesthetics, patients, sometimes dream they are transplanted from earth and carried off into space, and feel happy, and at rest, but upon gradually recovering consciousness, they feel reluctant to come to life again.

XIII—Cases of Consciousness to the End

In cases where consciousness remains to the last, the brain is probably unimpaired, which occurs for the most in chronic diseases of chest and abdomen. If the patient has a strong character, the mind at death will be much influenced by it. Those with consciousness and intellect to the end, die thinking in accordance with the influences exerted upon them during their previous life; also they are influenced by those around them at death. Oftener a delirium is present, which seems to resemble dreaming more than any other form of derangement.

When death by asthenia occurs more slowly from disease, the pulse is very feeble and frequent, muscular debility extreme, but the senses are good, hearing painfully acute sometimes and mind clear to the last. Death in this form is very manifest in acute inflammation of the peritoneum.

XIV—Old Age and Death

When death occurs at an advanced age, without preceding well-defined symptoms of disease, it may be considered as a natural termination of life.

It is difficult to say whether there is any actual death from old age alone. Death from old age is probably the only normal death. Some pass away in sleep, the circulation already reduced, is yet further reduced by sleep to such an extent, that circulation stops.

Others die so easily in sleep, that the time cannot be fixed. The mere art of dozing turns into dying; especially in old age, death is often the last sleep.

Abnormal visual impressions may occur when death is near; in many sight fails; there is complaint of darkness; more rarely the dying one sees a blaze of light, then dies. The spectra of the dying may be due to ideas of future existence, which cheer the last hour.

Physiological death in old age is the result of anatomical and therewith also functional changes of the elements of the body, especially the cells and those of highly developed and also of intermediate substances (Ribbert).

These changes are not caused by outward injuries, as bad food, etc., but are rather the necessary results of chemico-physical outlet of life. In the cells are formed products of nutrition, deposits which cause atrophy of the protoplasm. The intermediate substances which in a strict sense are not living, gradually by their mechanical functions injure the circulation, whereby the cells are further injured and their atrophy increased.

Diseases of old age, as arterial sclerosis, will increase senile changes which cause further complications. In itself, old age is free from disease.

In very old men, there is an instinct of death, where they have lived out their usefulness and capacity for physical enjoyment; they lose the dread of death, and are ready to resign with equanimity. The close of a long life of activity is like the close of a busy day, sleep is a relief and rest.

An old medical examiner in the Pension Office at Washington in reading thousand of pension claims, where the causes of death are given, noted not one in ten to have had other than painless and peaceful deaths; also in cases of convulsion, labored respiration and similar symptoms are not painful, but usually reflex. When there is pain, death is welcomed as a relief.

Death in extreme old age is generally so easy, that it might be called natural; it can be looked at as the end of a long journey, if not sometimes a dreary one; it may be like sleep after great fatigue; there is no apparent mental derangement, the end may be short, yet imperceptible; the senses fail, perceptions grow obtuse as, in sleep sensation fails first, then voluntary motion, but involuntary muscular contraction, excited by some stimulus, may continue; the pulse is less and less; the blood fails to reach the extremities, feet and hands become cold, which gradually extend deeper into the body. Thus far death appears to be painless, like in going to sleep: The rest called "agony of death" is automatic, unconscious and unfelt.

It is a pity that the fear of death should mar so much enjoyment of living. When our bodies are worn out and ready to decay, why should we desire to stay in them longer. In the aged, life most frequently ends from a rupture of an artery in the brain, or of the heart action; in such cases, whether sudden or gradual, there is no consciousness of its ending. In sleep, fainting, catalepsy, coma and as the result of certain accidents, vital functions are temporarily suspended, and unconsciousness drives away any pain.

XV—Painful Deaths

In diseases, characterized by spasm of the external muscles, as distinguished from their convulsion, spasm indicates no such unconsciousness as does convulsion. These cases are relatively rare, yet nu-

merous enough, but are so terrible that they fix themselves in our memory, though their number be greatly exaggerated.

There is in some cases, great suffering, which occurs in certain diseases of the heart and great vessels of the chest, in angina pectoris and in severe colic due to intestinal obstruction. But especially in hydrophobia, tetanus (lockjaw) and in spasmodic cholera.

Brodie, one of the old English authorities on death, said he had never known but two instances of fear of death, at the time of its occurrence; these were cases of hemorrhage, not possible to stop, where the gradual loss of blood worked on their minds. The worst case of suffering which the author ever saw was in one of the Clinics of Paris, (during his medical course) where a strong vigorous workman was brought in, who had fallen from a high building, and the bones of his body had penetrated his organs; he could hardly be touched without causing excruciating pain; it was his strength and health that made him able enough to feel such pain.

Pain in death by heart disease: Asphyxia, oppression, heart (precordial) pangs; muscular and bony twitches; tossing of the head in pain, colic and abdominal pains; partial suppression of urine (dysuria), burning micturition; diarrhea and rectal spasms (desire to evacuate, but not satisfied) or bleeding at mouth and nose, mucous dryness, absence of saliva and incessant smarting of the tongue; such are some of the main troubles of heart disease at death.

Pains in death from consumption: Patients can be wholly conscious at the last moment, and capable of feeling pain: asphyxia, and intercostal pangs, burning pain of chest; giddiness; terrible pains in the head; profuse sweat, sliminess and clamminess, metallic tastes in the mouth, parched tongue; drowsiness and terrible nightmares.

The inoperable cancer case should have plain speaking (the truth); this will aid both patient and physician to discuss adequately plans for making best possible use of remainder of life, with whatever help, surgeon, radiologist and psychologist can give. Also when cancer is diagnosed at first, patient and physician, by plain speaking, can discuss plans for extirpating the disease. In cancer there may be first a sudden knowledge of a tumor, then consultation and operation; but a disappointment, and lastly the realization of a lingering painful illness with a bitter end. Take cases with inaccessible malignancy who long for death, urging the doctor to hasten the end. Or take a long aortic aneurismal (arterial enlargement) case, continuing weeks and even months until death comes from asthenia (weakness) after emaciation to the last degree.

The hopeless and distressing cases of tubercular laryngitis, or lingering cases of pulmonary phthisis, or diabetes, or other progressive disease, such as locomotor ataxia, when the patient is daily expected to die, yet lingers for weeks and months, until some have been known to utter curses because they are not put out of their misery. The absolute number of patients begging that their sufferings be ended is not small.

The class of patients with no will power or intelligence, a burden to everyone, are found especially in asylums. Idiots only seemingly human, unable to feed themselves, and otherwise helpless and useless, are unable to enjoy life.

There can be agony in typhoid fever; in bronchopneumonia, in eruptive diseases, acute peritonitis,

puerperal fever and also terrifying by the partial lucidity which it generally gives to the mind. The physician alas, from time to time is present at these frightful death events, thinks that he has no power to help, so turns his eyes away, so as not to contemplate his helplessness. The patient is lost, there is nothing more to do. Why should we make him suffer more and longer, in continuing to treat him and keep him alive as long as possible, simply to suffer, when he is sure to die.

The strength of body has little to do with the kind of agony; an athlete subject to apoplexy slumbers in death, while an emaciated consumptive may struggle for days before dying. The sensations of agony almost wholly, are indicated by the symptoms proper to the disease; thus those with progressive paralysis of the nervous and muscular systems, if palsy was previously present, it remains. In acute myocarditis, vomiting and excruciating epigastric pain, accompanying an abrupt increase of dilation, are often forerunners of death.

In *Angina Pectoris* the long and especially fatal attacks of heart pain, not related to exertion not relieved by rest or nitrites are related with coronary block and its effects. Before these terrible seizures there are often milder anginoid attacks, typical in the location of pain in relation to exertion, emotion and rest and in relief by nitrites. Coronary sclerosis and occlusion is the cause of the pain and collapse in cardiac infraction. In thoracic aneurism pain is one of the earliest and most constant symptoms, and is called sharp, lancinating, dull, aching, and sometimes described as boring, grinding, cutting, burning, etc. Sudden death is probably due to vagus inhibition.

Angina pectoris is almost always incurable. The patient and his family should be so advised; the more severe the attack, the greater the danger of death; also the easier the paroxysms are evoked, the graver the disease; increasing frequency is also a bad omen. Seconds of agony seem like hours to the sufferer. Typical angina pectoris is characterized by paroxysmal attacks of pain over the sternum, radiating often to left shoulder and arm and usually having the feeling of impending death.

Mackenzie makes some form of heart exhaustion as cause. The paroxysms of pain may endure minutes or hours (rarely). Syncope or death may occur in any attack; intervals between attacks may be hours or years.

When a coronary is blocked by clot or sclerotic changes and cardiac infraction follows, there may be intense usually epigastric pain lasting for hours, often with pulse failure and fainting; the symptoms are not due to exertion or emotion and are not relieved by rest or nitrites.

Coronary occlusion may be without symptoms.

In the severest type of angina pectoris, the victim drops dead in the height of the attack; many patients live in constant dread of recurrence of the paroxysms; in certain cases attacks recur, but milder, so frequently as to constitute a prolonged anginal attack of several hours (Hall). A few cases die tragically in first attack, but others live through many paroxysms, and die of intercurrent disease.

Precordial pain may be due to sudden disturbance of nutrition (coronary occlusion), or added infection (rheumatism), or adverse mechanical factor (cardiac dilatation) (Neuhof). Coronary disease is the most common cause of pericardial distress.

With *aneurism of aorta* in any of its parts and associated coronary disease, the victim's life is in constant jeopardy; the patient is always dying."

In *Aortic Stenosis*, in some cases increasing weakness ends in fatal exhaustion; the last weeks or even months may be highly distressing to both patient and friends, and death be welcomed.

Mitral Regurgitation: Usually death comes slowly through gradually increasing cardiac exhaustion, with weeks or even months of most distressing symptoms.

Aneurism of the thoracic aorta. Pain is an early and most constant symptom in the last hours in many cases; there is extreme suffering, death being considered a blessed deliverer (Babcock). When compensation fails, there is practically no hope for men of middle age.

In consumption, lingering illness has been called "dying by inches"; in many cases it prepares the sufferer to endure the inevitable with fortitude and resignation; with many it is a welcome relief; many are indifferent to impending death, while others with halting tread and protestation are dragged to their doom. Generally the demise of the consumptive is quiet and peaceful, except by victims overtaken by death in complications, as pulmonary hemorrhage, where the end may be sudden and violent, bronchopneumonia, edema of the lungs and cardiac dilatation; in some deaths from aspirative pneumonia, the air hunger is extreme—and may happen in pneumothorax and invariably in pulmonary edema; here the suffering is more intense than can be imagined or described; dreadful paroxysms of cough can come. The mouth and lips are dry and the passes of sputum are extracted only by means of a cloth; the struggle (horrible to witness) "goes on without abatement until merciful death claims its own" (Bonney).

Pain of an initial pneumothorax from perforation of the pleura is usually of most severe and excruciating character and attended by symptoms of profound prostration or collapse.

The classic symptoms of general pneumothorax are sudden, consisting of excruciating pain in the side, extreme dyspnoea, cyanosis and collapse; in addition there is often extreme mental anguish; a patient for instance, supported upon each side by an attendant was rocking to and fro moaning and screaming as much as his labored and frequent respirations would permit.

PSYCHICAL DEATH-PAIN

Tortures of the emotions, regrets, intellectual and moral deceptions of the young wife who feels her life slipping away, of the young father, who forsores the evils to come to widows and orphans; of the young man, who is just ready to enter into the joys and glories of the world, and the young girl, who has the first feelings of love, or of the vanities of the age; but all of these must die. Such premature deaths are very saddening to us all.

Death is more or less gradual in the great majority of cases; certain signs foretell its approach. The stage, in which these signs are called the agony or death struggle, for it sometimes occurs with symptoms of excitement, consisting mostly of attacks of pain and spasms, also figuratively expresses the mutiny of the vital principle against impending annihilation.

Huxley, though an agnostic, admitted his dislike to the feeling of being put out of existence forever, a doctrine in which he believed.

Delicate and very sensitive persons just before death sometimes start out of bed and stand erect for a moment, when a struggle is excited by difficult

breathing; this is due to fear and alarm (Ferriar).

The idea of death is more frequent in the minds of neurotics. Among 2600 patients resistance of disease diverted the attention from the idea of death (Connell). In melancholia, where there is impulse to suicide, when attacked with physical disease, there is noted an improvement in their mental state.

There is a tendency to death in anxiety hysteria; anxious hysterics think they are ill; talk suicide, but the more talk the less likely is there any effort. But in their attempt, self-preservation instinct acts; drowning attempts are in shallow water, or where people can perceive them. The neurotic looks at death as an escape from the pressure of life; it is like sleep; it is a pleasurable escape. Unstable nervous systems, and those with organic disease, especially related to the heart, are influenced most by emotional excitement. There are mental states with inoperable cancer, where friends know patient is dying, but he is supposed not to know. His friends urge him at first to seek thorough treatment; now they avoid any reference to cancer. The patient is in continual conflict and sinks into loneliness and phantasy.

There are often paroxysms of great suffering when the heart or great vessels of the chest are the seat of the disease, and the circulation through the lungs is becoming greatly embarrassed; the patient fears instant suffocation and sits in or out of bed with the head bent forward resting on a table or other support and expecting to die every moment (the murderer to be executed suffers little in comparison).

Death in Hydrophobia: When once established this disease is fatal: (1) patient is depressed, has headache and loss of appetite; irritable, sleepless, with sense of impending danger, the larynx may be infected voice becomes husky and first difficulty of swallowing occurs:

2nd stage: great excitability and restlessness, extreme hyper-aesthesia. (Sound, air current, idea can cause violent spasms); the spasms of the muscles of the larynx and mouth are exceedingly painful, with great difficulty of breathing, attempt to swallow followed by spasm of muscles of swallowing and respiration. In intervals, patient becomes quiet. This stage lasts from a day and a half to three days.

3rd or paralytic stage: Patient becomes quiet; unconsciousness gradually supervenes, heart is feeble and death occurs by syncope. This stage is from 6 to 18 hours.

CONCLUSION TO PAINFUL DEATH

Naturally physicians do not want to take the responsibility of death and life in any of their cases. But their reasons are similar to those given, when anaesthetics were first urged upon them. Yet, as we have suggested, physicians should be given this power, at least in cases where death is extremely agonizing and certain within a short time. If the medical profession be given this power, there is not the least reason to doubt, but that it will most honestly and conscientiously use such power for the good of both patient, family and community, and will see that any abuse of such power is punished.

The feeling against hastening of death in terrible, fatal and agonizing cases, is based upon the idea of "sacredness of life". But sacredness of life has its limits, as in war, where it is a patriotic duty to take the life of those who are well and resist it. Certainly it is a humanitarian and medical duty to relieve human beings of agonizing death pains, who beg for such relief.

XVI—Euthanasia

Euthanasia consists in efforts to produce an easy death. In Egypt, the priests took an oath to alleviate pain by any means. Asia, especially the Orient, followed the Egyptians. It is stated that on Buddha's command, the most venomous snake (cobra) inserted its fangs into his forearm and Buddha died in ecstasy. In Greece and Rome the radial artery was severed; another method was drinking hemlock. It is when nature is vehemently interrupted, that we wonder or weep. The Greek considered prolonged grief as an offense, and called it melancholy madness.

Homer speaks of a "drug, an antidote of grief and pain, inducing oblivion to all ills. He who drinks of this mingled cup sheds not a tear the livelong day, were death to seize his venerated sire, or her who gave him birth" * * *

From ancient times the victims of opium and Indian hemp have been known. Of all anaesthetics, the ancients used man-dragon most to produce insensibility and loss of consciousness. The use of powerful narcotics gradually diminished as the superstitious of the Middle Ages and the arts of the sorcerer fell into disrepute. But anaesthetic drugs decreased and fell out of use by physicians. Some of the accidents due to lack of knowledge of anaesthetics were the cause of this indifference among medical men for many years. Three centuries ago, Verulain had occasion to censure the physicians of his time for not making Euthanasia a part of their studies. It is quite as much, he said, the physician's duty to make death easy, gentle and placid as it is to cure diseases and restore health. Sir Humphry Davy (1800) suggested that nitrous oxide destroyed physical pain, but it was fifty years before this idea was acted upon.

Dr. Morton, an advocate of anaesthetics in surgery was met by opposition in the Massachusetts medical hospital, though he convinced them of their error, opposition continued. He was denounced by the daily papers, prosecutions were threatened for administering ether at all. Prejudice was deep-seated.

The Dental Society protested against him; some called him a humbug; it was said, if after breathing it, one dropped into a quiet slumber, mothers would be glad to have it to put their children to sleep. "Morton's sucking bottles" were phrases used to ridicule him; one medical journal called it a "quagmire of quackery". The War Department refused to use anaesthetics, notwithstanding the relief it could give to soldiers, requiring operations. The religious objection was, that since man was condemned by Providence to suffer pain, it was wrong to attempt to violate this decree. A clergyman said "Chloroform is a decoy of Satan."

Failures in knowledge as to anaesthetics in the past brought pioneers into undeserved discredit; Wells (1848) failed in an experiment before the Harvard Medical School and was hissed, and so keenly felt it, that he committed suicide. Dr. Snow opposed a Prevention of Offences Bill in the House of Lords (1851), in which there was a clause to prevent, by severe punishment, the administration of chloroform or other stupefying drug for unlawful purposes. Dr. Snow was attacked by the medical press.

Considerable opposition was made to the inhalation of ether in the United States for various reasons, as failure in methods, cries and struggles of patients to whom it had been administered. But it

soon became evident that ether was sure to produce entire absence of pain, yet it met with strong opposition.

NATURAL EUTHANASIA

A natural euthanasia is to die as unconscious as one is born. Without pain, anger or sorrow, the intellectual faculties lose their brightness, ambition ceases or sinks into desire for repose; ideas of time and space slowly pass away; to sleep and not to dream is the need; the awakenings are short and shorter; painless and careless, then overpowering sleep. Thus, at length, intellectual force is lost, animal functions are no longer required to sustain higher faculties, which in their turn succumb. This seems to be a natural psychological death. But it seldom occurs.

HOW TO COMFORT THE DYING

It will be instructive to give some of the ideas of those physicians and specialists, both of the present and past, who have given much attention to the dying time and to note some of their precepts as to how to comfort the dying.

First, let your attitude toward the dying one be adapted to his condition: attend to the chest of patient, when choking, on raising him up and resting him on cushions; keep numerous persons out of the room; open the windows sufficiently to get a little air, and agreeable odor; from time to time wipe away the perspiration with a soft cloth; keep flies and gnats away.

The physician should be present to aid his patient up to his last breath, with a therapeutic treatment as gentle as possible, so that his patient may die with that minimum of suffering which science can permit to be realized.

As the patient is too weak to explain, the physician must act for him. If it is a lung death, and in the way of asphyxia, fresh and cool air in the room will relieve the difficulty of breathing. Excluding light from the room is a mistake; the dying one often complains of failing sight,—of darkness over him.

When a physician finds his patient must die soon, too often he neglects him; but his duty is not ended when the priest is reciting prayers. The physician can and should assuage physical suffering during the dying time. In heart diseases, the patient can be cognizant of impending death from choking; the fear here is unfortunately sometimes based, for the trouble can be painful and long. The moribund may be conscious and can tell of the horror of their last moments.

It seems cruel and inhuman to tell a dying one that he is lost, and to abandon him to ministers of religion or those about him who often, without doubt, aggravate the pain of the dying one on preparing before his eyes ceremonies of his last toilette, or discuss in his hearing (often acute) in loud voice or whispers (worse) the heritage which he will leave.

Because the priest or pastor does his duty at the dying hour, is no reason for the physician to depart. Religion comforts the soul, and the physician should remain also to the last to try and comfort the body, and make physical pain less.

In a half-conscious dying person, restlessness may be due to a distended bladder which can be eased by the catheter; coldness of feet is best treated with a foot warmer and not by heavy bed clothing which may cause distress.

The eyes and eyelids should be bathed frequently. The nostrils should be cleaned and treated. If it be

abdominal affection, the sheets and coverings should be very carefully handled.

Much pain at death may not be due to the act of dying; restlessness and tossing about (jactitation) may be due to weight of bed coverings; difficulties of breathing and gasping may be increased by heat of the room or closeness of the air; change of posture and of pillows supporting the trunk of the body are helpful. Giving of food is of great importance. The wishes of the dying one are generally correct indication of all that relates to food and stimulants. Unwisely given food accumulates in the stomach, may distend it and make breathing still more difficult. If there be nothing to forbid, nutriment and stimulants may be continued, so long as the lips close and swallowing follows promptly; but if liquids trickle down the throat, and merely cause a faint effort at swallowing, they should be withheld.

In all cases of dying by failure of heart action, the head should be low rather than raised, and supported on firm pillows. Erect or sitting posture tend to fainting and death.

The dying time from lungs or by asphyxia is often protracted, and accompanied with those signs of suffering, which the imagination associates with the closing scenes of life; in the earlier part of it, there is doubtless suffering, but of short duration, since venous blood ensues deadening the sensibility to pain. Breathing may become irregular and laborious, with convulsive heaving of the chest, but such movements are automatic, and soon pass into coma, stertor, rattle in windpipe and death. Stertor may be relieved in placing patient on one side and supporting him in that position by pillows. In coma, nothing can be done, except that the head is to be supported on a pillow and slightly raised, but not so much as to increase the tendency, to slide downwards in the bed.

A dry and parched tongue and mouth, so common in dying (and inextinguishable thirst in phases of it), will be assuaged by a frequent spoonful of ice water; so also small pieces of ice, allowed to dissolve in the mouth.

What is said (the less the better) should be in a natural way. There should be no officious interference or obtrusive curiosity. The patient, if able, should direct his own conduct in devotional exercises, and in interchange of affection with his friends. When the mental powers are forced to these subjects, they usually sink into complete debility, and respiration becoming weaker, the patient is made apparently insensible to his surroundings; yet the dying one may know what is going on; sometimes the patient is requested to give a sign that he was still alive, as by moving a finger. In some cases there is a lucid interval just before death, as shown by the face and gestures, when patient is unable to speak. When death is imminent, all noise and bustle should be prohibited, and patient should be undisturbed, unless in an uneasy posture. The dying are impatient of any kind of covering, throwing off the bed clothes, lying with the chest bare, and neck, arms and legs fully exposed; to avoid everything that prevents operation of air on the skin. This is considered instinctive, for there are actions and reactions between air and blood in the skin, similar to those which occur in the lungs, and in aid of them.

Crowding around the bed and exclamations of grief from the family, only disturb the dying one. In death beginning at the heart, by way of syncope, fresh air and stimulants continuously given are indicated.

INTIMATION OF DEATH TO PATIENT

When intimation of death is postponed to the last, the patient may not have time to get over the shock. This could be avoided in most cases, by an earlier intimation of death with tenderness and prudence. While the fear of death is rare at the time of death, yet the last moments can be made miserable by solicitude for those whom they will leave behind them, as leaving children dependent upon them.

The less fear of death, the more placid as one at death; but fortunately nature usually prepares us, so that when the end comes, fear disappears, and often death is desired. If a patient be shocked (rare), when he realizes he must die, it is usually transient. Nature seems to bring a torpor that steals softly over the whole being, as death approaches; the desire to live ceases, as life energy approaches a minimum. It is surprising to those having much experience in witnessing death, that so few are reluctant to depart to go to a country from which no traveler returns. There is an absence of dismay when death draws near, is the statement of one who had seen many deaths.

To tell when death will surely occur is almost impossible. The ultimate outcome of certain diseases is hydrophobia, Addison's disease and cancer, may be certain to be death in a more or less definite period of time. Women sense death better than men.

RELIGION A GREAT HELP IN DEATH

So long as consciousness and intelligence continue, the influence of mind and emotion on the bodily condition of dying can be as influential, if not more so, than in health; thus hope is soothing and fear depressing in both conditions. If the patient knows he cannot live, hope of a future life and immortality is most helpful and cheering and especially of things done unselfishly. The promise of salvation will do much to make death calm, if not easy. Religion is a great source of comfort to both patient and surrounding friends. The religious life smooths the pillow in the hour of death; religion mitigates through life one's view of death; it allays apprehensions in timid souls, who look into the future with vague feelings of doubt and fear when in health. Yet at the crucial moment, he may not be different from the unbeliever. For nature may come to his rescue.

OLD AGE

In old age, there is a gradual and proportionate decay of all the vital organs, and usually no special treatment is required. But if this normal process is disturbed by disease of a vital organ or by surrounding conditions, causing suffering, good nursing and proper giving of light food and stimulants is about all that is required, for generally death approaches gently and easily so that it is really the euthanasia that nature provides so well.

OBJECTIONS TO EUTHANASIA

We have seen in the case of anaesthetics that opposition to its beneficent effects was based mainly on custom, prejudice and ignorance. To-day, practically these same forces of inertia and habit are opposed to euthanasia, in cases where an agonizing death is certain, and where the only relief is bringing such agony to an end.

There are no doubt difficulties in carrying out euthanasia fully, and the same kind of arguments and objections are made as were made against anaesthetics in surgery. Here are some of the strongest practical objections made to carrying out euthanasia fully in certain cases.

Friends may desire the death of a patient, who has money; his heirs are anxious to come into the inheri-

tance as soon as possible; or there may be a large insurance to be given them after patient's death; or the expense of long illness may be impoverishing the relatives; or the worry, trouble and interference with normal pursuits of friends, entailed by long nursing may make early death of hopeless cases, desirable. A good physician might be deceived by relatives who conceal some facts or exaggerate others.

The disease must necessarily be fatal, but that is not always easy to determine. For there are cases where eminent physicians were mistaken. An old man, very wealthy has acute peritonitis; he has an unlawful child to whom he thinks to bequeath his estate; he has also a nephew who is nursing him, and who knows that fact. This nephew naturally wants the estate. The attending physician is financially poor. The nephew offers him two thousand dollars to apply euthanasia, to which he yields and hastens the old man's way to heaven. Some authors think it is better to let a few suffer, and not run the risk of injustice and crime being committed; that in the long run such euthanasia would cause more harm than good to the community.

From this point of view, however, the physician can do his utmost to alleviate pain and make death as free from agony as possible; but in no case should the physician intentionally directly cause or hasten death.

Even if errors were not made, how is the exact time to be fixed, when it is justifiable to end the patient's life. In cancer, is one to wait for ulcerations, or begin as soon as case becomes inoperable. In case of an epidemic, shall we put the hopeless cases to sleep prematurely. The fear of the doctor, if euthanasia allows putting to sleep, would be great, just as now the fear of going to a hospital is very common among the people.

ANSWERS TO OBJECTIONS

The objections and reasons against carrying out euthanasia fully in certain cases, prove too much, for they are similar to those urged against anaesthetics in surgery, which were based upon fear of abuse, as well as superstition and ignorance.

An anaesthetic may cause death; if inhaled in private, was it of his own motion (suicide), or accidental? If administered by another, was he skilled or not? What was the object. Was it for relieving pain, or for purpose of murder or assault, or to facilitate robbery or conceal the occurrence of child birth. Such were some of the arguments against anaesthetics.

The French Academy of Medicines agreed that euthanasia is justifiable, when death is extremely agonizing and only a question of hours. It has been said, that physicians have a moral right to end life when the disease is incurable, painful and agonizing. A physician's duty is to alleviate pain and not to prolong it; we have no right to force life on a patient, when it is continuous torture, and the patient begs to have an end put to it. A life of pain is no more sacred than one of crime, disgrace or humiliation.

There are two distinct classes of cases:

- 1) Those hopelessly diseased and certain of death in the near future, though possibly with months of terrible suffering, and who desire to die if their suffering cannot be relieved.

- 2) Those with no will power nor intelligence, a burden both to themselves and friends, and also the community, and absolutely incapable of improvement.

There are monstrosities, as hopeless maniacs and melancholics.

There should be a law allowing all such cases to be referred to a committee of physicians to decide as to the proper method of relief. The honor of the medical

profession can be trusted to punish any abuse of the power given them. When death is practically certain all thoughts of cure and prolongation of life should be dismissed, and every effort confined to the relief of pain, exhaustion, dyspnoea, spasm, etc.

According to Ferriar, the physician should not torment his patient with useless attempts to stimulate the dissolving system, through *idle vanity* of prolonging the flutter of the pulse a few more vibrations. If death is certain, the patient should be protected from pain.

The American physicians are willing to give comfort to the dying, if it does not hasten death. This is doubtless in conformity with old laws.

Here is a natural case of a man 70 years old, with no power of voluntary locomotion, due to a paralytic stroke; thus he is confined to bed; in trying to walk he fell and his hip joint was fractured; finally, chronic invalidism resulted; he could never leave his bed. Owing to degenerative changes, decubitus set in producing much distress and agonizing pain; in spite of good care he grew worse. An ulcer extended deeper into his body, laying bare a bone; the discharge was fetid and cadaverous, requiring frequent dressings; patient was a continual menace to himself and family; he bitterly pleaded with his physician to produce death. His family could not endure seeing him suffer, and pleaded with him. The change of dressings meant disgust to patient, family and physician. Half a grain of morphine was given hypodermically thrice daily but without avail. The patient gradually rotted away, a horror to himself and surroundings.

A JURIST'S DEFENSE OF EUTHANASIA

Judge Baldwin, an able American jurist, has expressed his views as to the pride of many physicians in prolonging life, where patients are incurable, without regard to their wish, comfort, pain, suffering, that is at any cost.

The patient cannot eat, his vitality is gone, the main-spring is broken and the watch has run down, but it can be made to tick a few seconds by shaking it hard enough. Nature has smoothed the way. To force nutriment into a patient based upon an *abstract* idea, giving misery to the patient is not only unscientific but unjust to the patient and immoral. Dr. Barker, professor of medicine in Johns Hopkins University, says that if radical cure be impossible, the palliative should not be forgotten.

Dr. Bach in 1895, at a Medico-Legal Congress, said, that physicians had the moral right to end life when the disease is incurable, painful and agonizing.

EUTHANASIA NOT TAUGHT IN MEDICAL SCHOOLS

Euthanasia, which is concerned with making death easy, gentle and placid, is not generally taught in our medical schools. The real cause of this is the power of superstition, which is mainly an unconscious complex. It is therefore all the more difficult to overcome.

Angina pectoris, often without warning and frequently without warning, early in the morning between midnight and four o'clock, the patient is awakened suddenly, feels as if his heart were in a vise, and is convinced of immediate death; he is in a compelled sitting posture, stricken, face pallid, gray and covered with cold sweat; breathing shallow, pulse feeble and momentarily lost, may be also normal, accelerated or slow; arterial tension high, patient may have clutched at the pericardium, maintaining that position, supporting himself with his opposite hand. His whole attitude is one of intense suffering, extreme fear, rigid immobility and impending death.

The suffering of the culprit upon the scaffold is not to be compared to the suffering of the victim of angina pectoris. Yet it is legal to end the suffering of the guilty and illegal to stop that of the innocent.

CONCLUSIONS AS TO EUTHANASIA

We will all sooner or later be sentenced to death by nature. It is true that in all probability the majority of us will be unconscious in the dying time. It is also true that many of those who are conscious while dying may suffer little or no pain. But none of us know what our fate will be. If we are wise and use foresight, we will not assume that we shall escape an agonizing death. If nature may not be so good to all of us, why should we not improve on her, as we do in many less momentous things, and make sure of a painless death. Would it not be a great blessing for the living to be sure of a painless death bed? Would it not be a tremendous boon to humanity for science to show the way, and insist on a painless death for all. Why should our farewell moments on earth not be pleasant, when it may be possible for science to make them so?

XVII—Sources of Information

As indicated in footnote on first page of this article, the author claims no originality, except in the synthetic working out the main parts, from a labyrinth of various statements of numerous students and witnesses of deaths. No single physician or specialist could witness but relatively few deaths, and no general opinion could be based upon such necessarily limited experience. This would be empiricism, which has misled many in medicine.

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Prognosis in Malignant Disease

The results of treatment in malignant disease are, on the whole, so unsatisfactory that there is a natural tendency to shirk any attempt at prognosis in individual cases. Every surgeon, of course, can point to instances where his intervention has been completely successful; were it not so, indeed, his task would be intolerable; but he would be the first to acknowledge that his results depend a great deal on factors of which he is ignorant. Of two apparently identical cases, treated in exactly the same way, one may be restored to health, permanently or for a number of years, while the other may terminate fatally in a few months. In attempting to estimate the chances of recovery, the extent of the disease is naturally of the first importance. Involvement of the neighbouring lymph nodes makes the prognosis grave, and further extension makes it practically hopeless. But what is to be said of those cases in which there is no obvious dissemination? It is above all in this group that the position of the surgeon is so difficult. Is he justified in offering the patient the encouragement which is so desirable, or must he still refrain from offering any but the most guarded opinion? Mr. D. H. Patey and Dr. R. W. Scarff have attempted to answer the question in reference to that very difficult tumour, carcinoma mammae, and have brought forward results which are at least encouraging. The number of cases investigated by them is small, being only 50, but, on the other hand, they were all operated on by the same surgeon and were investigated by the same individual, so that variations due to the personal idiosyncrasy of the observer is reduced to a minimum; the period elapsing between the operation and the time of recording the result ranges from three to seven years, which is a reasonably long interval, and the records are complete in every case. In estimating the degree of malignancy of the tumours, they have adopted a histological classification based largely on the work of Greenough, and have relied upon the degree of dedifferentiation of the tumour cells and the apparent rate of growth as evidence of malignancy. After careful consideration of all the available facts the tumours were grouped into three divisions according to the degree of malignancy which they were believed to possess, and were then subjected to analysis in the light of the subsequent clinical histories. It becomes apparent from an examination of the data that the authors were justified in their classification, for their figures show a progressive deterioration in the clinical results as the index of malignancy rises. The duration of the disease before the axillary glands become involved is definitely longest in the group of low histological malignancy, and palliative operations give more prolonged benefit even in advanced cases. It is especially in those cases in which dissemination has occurred, but to a moderate degree, that the value of histology in estimating prognosis is best seen. Of ten such patients belonging to the low and medium malignancy groups, four were alive and well at the time the records were taken, whereas of eight patients in the high malignancy group there were no survivors. It is to be hoped that Mr. PATEY and Dr. SCARFF will continue their work, for it seems to be based on sound lines and to have definite possibilities. The experimental study of cancer has shown that individual tumours differ from one another in their biological characters, their rate of growth, and their behaviour on transplantation. There is no reason to suppose that the spontaneous human carcinomata differ from the experimental tumours in being built to the same pattern; they also have their individual character which is more rigid and of greater importance than the reaction called forth in the tissues of the host. The amount of stroma and the degree of cellular infiltration are of little value in estimating the growth of energy of the tumour. It is the malignant cell itself to which we must look for information, and though it may not be permissible to speak of the correlation of structure to function in the malignant growths it is clear that the structure of a carcinoma has a fairly definite relation to its biological activity.—*Lancet*, Apr. 21, 1928.

Pyelography Note

Any patient who will tolerate bilateral ureteral catheterization is a subject of bilateral pyelography; in one case the kidney pelvis are lavaged with silver nitrate and in the other with sodium iodide.—Miley B. Wesson, M.D., in *Radiology*.

Meningitis and Endocarditis (Pneumococcic)

Report of Twenty-five Cases

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(Concluded from page 228, August 1928 issue)

PNEUMOCOCCUS (IV) MENINGITIS

CASE XVIII—Anna S.—Service of Dr. Wm. N. Bradley, Chief Pediatric Department, Philadelphia General Hospital. No. Ped. B. 2052. Admitted 8/1/26, died 8/6/26. *Diagnosis*—Pneumococcic meningitis (group IV) Bronchopneumonia. White child; aged 6 years; born in Philadelphia.

Chief Complaint—Vomiting, fever.

History Present Illness—Ate heartily of macaroni on July 31st, 1926. Child seemed well until 1 A. M. August 1st, 1926. Then it awoke, crying and continued to cry most of the night. Vomited water and orange juice which were given. Fever. Child very thirsty, but unable to retain liquids given. Complained of pain nowhere but in the head. About 8 A. M. child began to be drowsy, and has been sleeping almost all day. Has been able to retain water taken during day. Has had no cough; no diarrhea; bowels moved twice today. Child has voided, but mother says urine seemed "strong". Baby did not complain of sore throat. This morning had few twitching movements of arms. These have recurred frequently during day, but there have been no real convulsions. No rigidity of neck today, parents say. Was not rigid when first seen in Receiving Ward, but became so soon after arrival. Was seen by physician in Burlington, N. J. this afternoon. Gave no medication, but sent child here with tentative diagnosis of right apical pneumonia. Parents Italian, and speak English poorly but seem intelligent and appeared to comprehend meaning of questions and answered intelligently.

Past History—Full term, normal delivery. Breast fed for eleven months. Walked at one year. Talked at 18 months. General health good. Had measles in 1924; scarlet fever in 1923; tonsillitis 1924. No other contagious diseases.

Family History—Father and mother and six other children living and well. None dead. No family history of tuberculous, insanity or epilepsy.

8/1/26—*Note on admission*—Patient is a white female child of about six years desperately ill. She is well developed and nourished. There is no cyanosis nor jaundice. No dyspnoea but the breathing is irregular, approaching that of Cheyne-Stokes. She is delirious and frequent twitchings of the upper extremities are present. She is in a semi-comatose condition.

Head—Scalp, grossly negative.

Eyes—Pupils equal, regular, react to light. Accommodation and extra ocular movements not satisfactorily tested at this time. However, no ocular palsies are obvious.

Nose—Dried, crusting, no discharge.

Ears—Grossly negative. No discharge. No signs of mastoiditis.

Mouth—Open. Lips dry. Garlic odor to breath. Tongue not coated, but rather dry. Buccal mucosa normal. Teeth in poor condition.

Throat—Slight injection of anterior tonsillar pillars. Tonsils not grossly diseased. Muco-purulent discharge clinging to naso-pharynx. No suspicious spots on membrane present.

Neck—No cervical adenopathy. No abnormal pulsations.

Chest—Expansion fair and equal. Resonant throughout. Breathing puerile, but slightly exaggerated beneath left clavicle and over right base. No rales.

Heart—Normally situated. No shock, thrill or murmurs. Rate rapid. Rhythm regular. Sounds well heard and of fairly good quality.

Abdomen—Somewhat retracted. No tenderness. No rigidity. No abnormal masses palpable. Around the umbilicus are half dozen pin points erythematous areas not truly petechial.

Genitalia—Labia somewhat reddened and slight amount of serious discharge present.

Extremities—No deformities, grossly negative.

Nervous System—There is a positive Kernig present bilaterally, Brudzinski's sign is also present and well marked, but no contra lateral reflex. There is definite rigidity of the neck muscles. Occasional twitchings of hands and forearms. Apparently there are no hyperesthesia present. No palsies. No Babinski. No ankle clonus. There is a slow horizontal nystagmus of both eyes. Knee jerks are absent. A lumbar puncture yielded about 23 cc of cloudy fluid under moderate pressure. Sterile specimens of which have been taken and sent to the laboratory for state examination.

Diagnosis—Meningitis (meningococcic?)

8/2/26—Patient being transferred to Children's Hospital. This A. M. there is a marked bilateral Babinski and contralateral Brudzinski present. No ankle clonus or patellar clonus. No hyperesthesia. Patient not so delirious.

7 P. M.—Eye ground examination showed no evidence of intra-cranial pressure but cisterna puncture yielded about 16-18 cc of opalescent fluid under fairly marked pressure. A lumbar puncture at the same time yielded only about 4 cc spinal fluid which just about dripped and seemed to be slightly more cloudy than fluid from cisterna magna. 300 cc of normal saline were then given intraperitoneal.

8/3/26: A. M.—Cisterna puncture done, only about 3 cc fluid obtained and pressure on spinal manometer =

nil. Lumbar puncture yielded about 8 cc turbid fluid under 4 mm of mercury. Intra-peritoneal of 500 cc normal saline given. Very little change in signs presented by nervous system except not quite so much rigidity of neck muscles. An attempt to irrigate cisterna magna with normal saline was made, but proved unsuccessful, because for some unknown reason saline would not run in. Patient is brighter. Eye ground examination by Dr. Deichler revealed no evidence of intracranial pressure.

9.30 P. M.—Approximately 20 cc spinal fluid withdrawn by lumbar puncture and 14 cc polyvalent anti-meningococcic serum introduced into spinal canal by gravity method. The fluid withdrawn not so cloudy as that obtained heretofore.

8/4/26—Patient more restless, at times quite delirious. At noon there was no Babinski on either side. Other findings remain as above.

3 P. M.—About 30 cc spinal fluid withdrawn by lumbar puncture, more cloudy than last night and under a little more pressure. 15 cc of polyvalent anti-meningococcic serum given by gravity method. Also 450 cc normal saline intraperitoneal.

8/5/26—Lumbar puncture done at 3 A. M. with hope that some fluid could be withdrawn and more serum instilled but result was dry tap. Patient very restless.

4.30 P. M.—Lumbar puncture again resulted in a dry tap. Then cisterna puncture yielded at least 18-20 cc turbid fluid. An effort was made to instill into cisterna magna while needle was in some polyvalent anti-meningococcic serum but efforts proved fruitless. A second lumbar puncture was done, but it too resulted in a dry tap, which indeed looks very much like a block high up.

8/6/26—Yesterday over the right chest posteriorly in interscapular area suspicious areas of harsh breathing were located, also beneath right clavicle. No rales. This A. M. another suspicious area over left base located and fine crackling rales heard in these areas. Report from bacteriological laboratory this A. M. says *pneumococcus group IV* in spinal fluid by culture and smear.

Final Diagnosis—Pneumococcic meningitis; bronchopneumonia. Patient died 8/6/26.

8/3/26—Eye Examination by Dr. Deichler: Media clear, disc margins well outlined, nerve good color, vessels normal, fundus negative.

Laboratory Record:

Blood—W. B. C. 16,300; polys. 78; lymphos. 20; L. & Trans. 2.

Spinal Fluid:

8/1/26—Cell count 9; differential count—polys. 54, lymphos 43, endo. 3.

8/2/26—Cell count 650; differential count—polys. 90, lymphos 3, endo. 7; few R. B. C.

Cisterna:

8/2/26—Cell count 530; differential count—polys. 69, lymphos 9, endo. 22; many R. B. C.

8/3/26—Spinal fluid culture—Pneumococcus group IV. No autopsy performed.

PNEUMOCOCCUS (TYPE II) MENINGITIS

CASE XIX. William K.:

Service of Dr. H. B. Allyn, Chief, Medical Ward, Philadelphia General Hospital, No. J4402.

Admitted 1/26/21 died 1/27/21. Diagnosis: Meningitis (cerebrospinal)—Pneumococcic type II. Patient admitted to Alcoholic Ward, Service of Dr. J. C. Doane, Chief, as a case of Delirium tremens.

Chief Complaint—Man is sent in as a delirium tremens case. Is very nervous, least stimulation causes him to

jump and twitch, unable to speak, temperature 101 axillary, pulse 125. Is semi-delirious.

Family History—Not obtained.

Past Medical History—No past history obtained except that he has been drinking heavily for past two weeks.

Physical Examination:

Head—Eyes—pupils contracted, slight reaction to light, corneal ulcers on both eyes due to inability to close lids.

Mouth—Dry—teeth and tongue covered with sordes.

Face—Somewhat pinched expression, lips drawn to one side.

Neck—Rigid.

Chest—Lungs—negative.

Heart—Rapid, only one sound audible. Pulse deficit.

Abdomen—Negative.

Extremities—Rather rigid. Kernig's positive at times.

Reflexes—Knee jerks absent. No ankle clonus. Babinski not definitely positive. **Spinal puncture**—pressure normal, fluid very cloudy. Smear of fluid revealed large number of streptococci with blue stain. Grams stain revealed gram positive, chained organisms.

1/26/21—Patient is evidently not a plain delirium tremens case and condition warrants immediate medical attention, transferred to Medical Ward.

Chief Complaint—Delirium.

Family History—Mother died of pneumonia. Father died of cardio-renal. Two sisters died in infancy. No history of tuberculosis in the family. One brother died of carcinoma of stomach, two years ago. Patient is a white male, adult, aged 51 years; occupation grocery clerk; born in Philadelphia.

Past Medical History—Scarlet fever with a complication of otitis media in early childhood. Subject to colds very easily, but never had any serious sickness outside of typhoid fever twenty-five years ago.

History Present Illness—Two weeks had a severe cold, somewhat like influenza, was treated by family physician and apparently got well. Saturday afternoon began to complain of pain in left ear, that night the pains became intense, medication did not relieve the pain. Sunday morning after a hot poultice had been applied, pus began to ooze out of external ear, pain disappeared. Not much discharge and later the wife cleaned the ear with a syringe. Sunday afternoon and night the patient rested well. Patient complained of severe frontal headache. Monday morning felt good, but the afternoon he began to feel worse. On Monday there was no discharge. Monday night he began to vomit and this lasted all night, the color of the vomitus being green and watery. Tuesday morning vomited a few times. During this time the patient did not complain of any localized pain but felt generally distressed. The patient became exhausted and started to ramble in his speech. Tuesday night and Wednesday morning the patient was delirious. Several times for a brief period the patient was conscious. Moaned and was very restless when moved or examined. The patient remained in this condition up to time of admission to the hospital.

Social History—Married. One child, died. None living. Ate regularly, good sound sleeper. Smoked and chewed tobacco moderately. History of drinking is not clear although wife states that patient has not been drinking for the past two weeks, but at times he would take too much liquor.

1/27/21—Patient unconscious, mouth open. Breathing stertorous. Lips dry and cracked. Tongue brown. Pulse alternating and arrhythmic. No Kernig. No opisthotonos present. No Babinski. Patient died at noon.

Diagnosis: Meningitis, cerebrospinal (Streptococcic?)
No laboratory report recorded.

Autopsy No. 5794: performed by Dr. McCutcheon.

Clinical Diagnosis—Cerebrospinal meningitis (pneumococcic type II).

Bacteriological Diagnosis—Culture of heart blood:—

Non-hemolytic streptococcus. Culture from middle ear:—

Pneumococcus II (atypical). Culture from meninges:—

Pneumococcus II (atypical).

Gross Anatomical Diagnosis:

Heart—Cloudy swelling.

Lungs—Congestion and edema.

Spleen—Fibrosis and congestion.

Kidneys—Slight chronic parenchymatous nephritis; cloudy swelling.

Histological Diagnosis:

Lungs—Hemorrhagic infarct.

Spleen—Acute diffuse splenitis.

Kidney—Acute tubular nephritis.

Heart—Cloudy swelling.

Liver—Cloudy swelling.

Brain—Suppurative meningitis (streptococcic); Encephalitis (concomitant).

Cause of death—Pneumococcic meningitis.

Internal Examination:

Thorax—Thoracic cavities free from fluid and adhesions.

Pericardial sac—Normal.

Aorta—Of usual calibre, smooth intima.

Heart—Slightly enlarged. Normal amount of fat, slightly flaccid, moderate dilation of ventricles. Epicardium smooth; myocardium normal, fresh colored, not fibrosed. Wall of left ventricle, right 4 mm. Papillary muscles and chorda tendinea normal. Mural and valvular endocardium thin, and leaflets delicate. Aortic arteries 7, mitral 9, tricuspid 11, pulmonary 7 cm. Coronary artery unthickened. (Weight of heart 360 gm.) Foramen ovale is closed.

Left Lung—Weighs 720 gm., is imperfectly collapsed; pleura is smooth, dark red, everywhere crepitant. Cut surface moist and bloody, very dark. No areas of consolidation found. Bronchi show reddened mucosa. Peribronchial lymph nodes are calcified.

Right Lung—Weighs 630 gm., is like fellow. At the base pieces of the lung will sink in water, but there appears to be no well defined consolidation.

Abdomen—Admionial fat 2 cm., muculature well developed; peritoneum smooth and glistening, no fluid; diaphragm reaches 3rd interspace on right side, 4th interspace on left side, no adhesions. Organs are normal.

Spleen—Weighs 95 gm., measures 8 x 6 x 3 cm., normal consistency; capsule smooth. Cut surface red. Trabeculae very prominent; follicles not increased; pulp scrapes normal.

Intestines—Negative.

Gall Bladder—Wall is distended, contains thick brown bile, mucosa normal.

Left Kidney—Weighs 170 gm., measures 12 x 6 x 4 cm., normal consistency; capsule strips with considerable resistance and tears cortex. Surface not definitely granular. Cut surface shows normal differentiation between cortex and medulla, medulla being somewhat more pink. Cortical striations not very distinct, medullary striations are distinct. Glomeruli of normal size; peripelvic fat increased. Cortex measures 7, medulla 12 cm.

Right Kidney—Weighs 170 gm., measures 10 x 6 x 3½ cm., resembles fellow; cut edges do not bulge.

Bladder—There is small medium lobe hypertrophy obstructing the vesicle orifice, growth being the size of a large pea; no evidence of lateral lobe hypertrophy.

Histological Examination—Dr. Belk.

Lung—Congested: There is a fairly well defined area where all the tissue and spaces are filled with serum and red blood cells.

Spleen—Follicles somewhat enlarged; pulp greatly congested and infiltrated by a number of polys.

Kidney—Arteries slightly sclerotic; cells of convoluted tubules are swollen, pale and granular, many have lost their nuclei.

Heart—There is very slight cloudy swelling.

Liver—Cloudy swelling.

Brain and Cord—Dr. Winkleman:

The *Pia arachnoid* is tremendously thickened by an infiltration with white blood cells—mainly polys. The vessels show slight thickening of the walls, and all are filled with blood.

The *Cortex* shows all the reactive changes—intense congestion, increase in glia cells, loss of nissl bodies in the ganglion cells and edema.

The *Cerebellum* shows the same sort of pial changes and with generalized edema. Purkinje cells show loss of nissl bodies.

The *Spinal Cord*: the membranes of the cord are similarly involved. The anterior horn cells show loss of nissl bodies. The tracts are normal.

Diagnosis—Suppurative meningitis—Pneumococcic II; Encephalitis (Concomitant).

PNEUMOCOCCUS IV MENINGITIS

CASE XX.—Martha F. Service of Dr. W. J. McConnell, Chief, Neurological Ward, Philadelphia General Hospital. Nerv. C 2008. Admitted 7/1/24, died 7/3/24. Diagnosis—pneumococcic meningitis: (Pneumococcus, Group IV)—S. F. culture. Adult female, colored; aged 50 years; born in Philadelphia. 7/1/24: Patient was found unconscious about 6 P. M. Had talked with some neighbors at 5 P. M. Is unable to talk, neck is stiff. Babinski on the right.

Physical Examination—On admission: Deeply stuporous, can be roused somewhat. Right eye held tightly closed, ptosis of upper lid, bilateral purulent conjunctivitis and cataract. Can move arms and legs. Rigidity of neck is marked by mostly voluntary. No Kernig's sign. Reflexes present and equal. No Babinski. Many crackling rales at bases posteriorly. Cardiac hypertrophy with myocarditis and arteriosclerosis. Legs are edematous and pit on pressure.

Diagnosis—Uremia; lues.

7/2/24—Notes by Dr. McConnell: Patient stuporous, head covered with perspiration. Left cheek puffed out on expiration. Face showing either voluntary or involuntary twitchings about mouth. Left eye is protosed, deviated to left with spontaneous nystagmus. Right eye seems atrophied with what appears to be a ptosis. Considerable overaction of occipito-frontal on both sides. Neck is rigid. Flexion almost impossible. Both upper limbs are flaccid and about equally so although she seems to move left arm much more than right.

Reflexes—Biceps—right and left—diminished and apparently equally so on both sides.

Triceps—The right lower extremity is held in extension and while under observation has not been moved.

Left leg is actively moved and in its distal portion is the locale of tremor involving especially the flexors and extensors of foot and toes. This tremor is intermittent in its occurrence and it matters not whether limb is flexed or extended. Deep reflexes are greatly diminished and equally so. Plantar stimulation on left causes plantar flexion; on the right no response. Kernig's sign positive on left. Negative on right.

Physical Examination—General:

Head—Scalp, no fluctuation or evidence of injury.

Ears—No discharge.

Nose—Not obstructed.

Mouth—Held closed. Does not protrude tongue but it does not seem palsied. Tongue coated. Throat full of secretion.

Eyes—Left prominent, deviates to left, spontaneous nystagmus, purulent discharge, senile cataract, pupil large and does not react, conjunctival vessels show injection. Cornea blurred. Right eye resembles left but shows marked atrophy and ptosis of upper lid.

Neck—Short and thick, pulsating veins.

Chest—Large thick chest wall. Breathing shallow and rapid. No lagging. Resonance slightly impaired over upper right. The breath sounds are clear except for few crackling rales at bases posteriorly.

Abdomen—Obese, no masses or rigidity. Liver and spleen not felt. Uterus and bladder not enlarged to percussion. Many striae.

Extremities—Slight edema of legs.

Heart—Radial pulse rapid, full and bounding. Apex beat 5th interspace. No thrills or murmurs heard. Sounds are of poor quality.

Lumbar puncture gave greenish yellow turbid fluid which contained 3800 cells per cm. The majority of which were polys. Smear showed gram + cocci in chains, either pneumococci or streptococci. Pressure 3+.

Diagnosis—Meningitis (streptococcal or pneumococcal); Chronic nephritis; Chronic myocarditis.

7/3/24—Final Note—Patient never showed any improvement except transitory immediately after spinal drainage. Patient died at 12:30 A. M. Apparently pulmonary edema was the immediate cause of death.

Diagnosis as above. Laboratory reports *spinal fluid culture pneumococcus group IV*. No other laboratory record.

Autopsy No. 8956 performed 16 hours after death by Dr. E. Morgan.

Clinical Diagnosis—Streptococcal meningitis.

Bacteriological Diagnosis—Heart blood: *Coli communis*.

Gross Anatomical Diagnosis:

Lungs—Chr. adhesive pleuritis (right).

Heart—Hypertrophy. Syphilitic aortitis.

Liver—Congestion.

Kidney—Congestion.

Brain—(Tentative) Meningitis, markedly purulent; general edema; Myelitis, spinal cord.

Histological Diagnosis:

Lungs—Congestion.

Heart—Brown atrophy; aorta—early atheroma.

Liver—Congestion, cloudy swelling.

Kidney—Cloudy swelling, arteriosclerosis, mild.

Spleen—Ac. diffuse splenitis.

Pancreas—Fatty infiltration, cloudy swelling.

Brain—Meningo-encephalo-myelitis (ac. pyogenic).

Diaphragm—Normal.

Internal Examination—Pleural cavity contains about 10 cc clear amber fluid, many old pleural adhesions in left chest, right pleura negative. Pericardial sac contains about 10 cc of amber fluid. No free fluid in peritoneal cavity. Abdominal peritoneum shows many adhesions.

Lungs—Weigh—left 370; right 460 gms. They are voluminous and air containing. Pleura of left lung is thickened. On section lungs drip a frothy blood tinged fluid. The bases of both lungs show considerable congestion.

Heart—Shows moderate amount of hypertrophy. Weighs 345 gms. Auricles are dilated. Valvular endocardium shows no pathology. Coronary vessels show

nothing of importance. Arch of aorta shows puckering and wrinkling of the surface of the vessel. Arch seems to be slightly dilated. Abdominal and thoracic aorta show slight atheromatous change.

Uterus—Normal.

Tubes and Ovaries—Are bound down to the pelvic floor with many old adhesions.

Stomach and Intestines—Normal.

Liver—Liver weighs 1750 gms. It is large, capsule is not thickened. Edges are sharp. On section the cut surface freely drips blood. Surface is mottled in appearance. The gall bladder is large in size and contains about 25 cc bile which is thick, dark brown and syrupy in consistency. Mucosa of gall bladder is somewhat thickened and roughened and is mottled in appearance. No stones found. Ducts are patulous throughout.

Description of fresh gross specimen—Dr. Richardson.

Brain—Normal in size, weighs 1140 gms. The prominent feature is the very marked purulent meningitis, which appears as an opaque yellow green exudate, more over the superior portion of the cerebral hemisphere, but which extends down into the sylvian fissure of the right side to the base. On the left side it extends about three-quarter way to the Sylvian fissure.

Over the rest of the surface it appears as a milky effect, and the pia-arachnoid has a ragged appearance. At the base there is a very definite thickening and the parts in the interpeduncular space are softened and sort of agglutinated.

The brain generally shows a marked edema. The convolutions are flat. On the under surface of the cerebellum adjacent to the medulla there is a pressure ring.

In color the brain shows increase in redness, due to inflammatory change. The vessels at the base are small, and are included in the agglutinated mass. They do not appear to be sclerosed. The brain as a whole is very soft in consistency.

Pituitary Body—This was rather large, and seems to be softer than is usual. It is almost purple due to the congestion.

Spinal Cord—The cut surface of the cord shows marked softening. The contents swell over the surrounding membranes, yet the cord as a whole does not fill the dura to the extent of its fitting like a glove. The difference in the gray and the white matter cannot be made out. It all appears the same. The dura shows increased vascularity. It is a definite pink.

Skull—The sinuses of the skull were opened into. No infection was noted. The sinuses were quite dry.

Tentative Diagnosis—Meningitis, markedly purulent. General edema. Spinal cord shows a marked myelitis.

Gross Description after hardening of the brain in formalin—(Dr. Houlton.)

Brain—Shows practically complete obscuring of anatomic landmarks because of a greenish yellow exudate in the meshes of the pia arachnoid especially over the convexity.

Base—While involved, is not so severe as convexity. **Dura**—Is particularly thickened. The vessels show slight beginning sclerosis.

Right Optic Nerve—Is smaller than left.

Cord—The dura is abnormally thick, the entire cord is obscured by an exudate plastered over it. There is an area just above the lumbar swelling for a distance of 4 segments. The cord substance has practically disappeared and represented by a narrow ribbon of tissue.

Pia Arachnoid—Is greatly thickened especially over the lumbar region.

Dura—Of the cord is greatly thickened.

Gross Diagnosis—Acute meningo-myelo-encephalitis. Myelomalacia.

Microscopic Description of Brain and Cord—(Dr. Winkelman.)

The *pia arachnoid* is greatly thickened because of an intense cellular infiltration, consisting of polynuclear cells mainly and a considerable number of gutter cells. The vessels show definite thickening and hyalinization of walls. In places there is penetration down into the superficial cortical layers.

The *cortex*, as a rule, shows but little distortion. The vessels are prominent because of congestion, thickened walls and at times a pericardial collection of polynuclear especially in the upper layers.

The *cord* shows the same meningeal pathology. The cord itself is very edematous, the anterior horn cells fatty with penetration into the cord substance in places by the exudate.

Microscopic Diagnosis—Meningo-encephalo-myelitis (acute pyogenic).

PNEUMOCOCCUS (TYPE III) MENINGITIS

CASE XXI.—Robert R. Service of S. S. Cohen, Philadelphia General Hospital. Autopsy No. 8581 performed by E. Case. White man. Age 58. Admitted March 7, 1924, died March 7, 1924. Med. K 6055. Coroner's Case. Primary focus of infection was in the middle ear.

Heart Blood—Pneumococcus III.

Spinal Fluid—Pneumococcus III.

PNEUMOCOCCUS (TYPE I) MENINGITIS AND PNEUMONIA

CASE XXII.—William P. Service of Jos. Sailer, Philadelphia General Hospital. Autopsy No. 8440. White man. Age 60 (?). Admitted January 13, 1924, died January 23, 1924. Lobar pneumonia and meningitis.

Spinal Fluid—Pneumococcus type I.

Heart Blood—Sterile.

PNEUMOCOCCUS (TYPE II) MENINGITIS

CASE XXIII.—Edward D. Service of David Riesman, Philadelphia General Hospital. Jos. Weiner, interne. Med. L 171½. Negro. Age 40. Autopsy No. 8300. Admitted December 17, 1923, died December 19, 1923. Lobar pneumonia.

Spinal Fluid—Pneumococcus type II.

Blood Culture—Pneumococcus type II.

Sputum—Pneumococcus type II.

PNEUMOCOCCUS (IV) MENINGITIS

CASE XXIV.—George P. Service of R. G. Torrey, Philadelphia General Hospital. Autopsy No. 6116. Performed by Edw. Weiss. Admitted July 3, 1921, died July 5, 1921. Negro. Age 56. Med. J. 5933. Meningitis.

Spinal Fluid—Pneumococcus IV.

PNEUMOCOCCUS (TYPE II) MENINGITIS

CASE XXV.—Charles B. Service of L. N. Boston, Chief, Philadelphia General Hospital. H. I. Goldstein, Assistant Chief. White man. Age 78. Lobar pneumonia and meningitis. Coroner's case. Med. K. 262. November, 1922.

Spinal Fluid—Pneumococcus type II.

LABORATORY REPORTS OF SPINAL FLUID EXAMINATIONS

January 26, 1920—William K. Pneumococcus II (a.)

May 16, 1921—C. R. Pneumococcus IV.

July 3, 4, 1921—George P. Pneumococcus IV.

Sept. 12, 1921—Charles H. Pneumococcus II (a.)

Dec. 21, 1921—Thomas P. Pneumococcus II.

Feb. 9, 1922—Harry B. Pneumococcus II or IV.

March 31, 1922—Elizabeth A. Pneumococcus IV.

May 2, 1922—Hugh McC. Plus gram cocci (?).

May 15, 1922—Ernest R. Pneumococcus IV.

November 13, 1922—Charles B. Pneumococcus II.

April 12, 1923—Emily B. Pneumococcus IV.

May 2, 1923—John C. Pneumococcus II.

May 2, 1923—Dennis K. Pneumococcus I and II.

Sept. 7, 1923—Carey L. B. Pneumococcus IV.

Sept. 18, 1923—Daniel B. Pneumococcus IV.

November 5, 7, 1923—Thomas S. Pneumococcus IV.

November 10, 1923—Howard H. Pneumococcus II or IV.

Dec. 18, 1923—Edward D. Pneumococcus II.

Jan. 23, 1924—William P. Pneumococcus I.

March 7, 1924—Robert R. Pneumococcus III.

April 14, 1924—Nannie G. Pneumococcus I.

April 16, 1924—Michael S. Pneumococcus IV.

April 24, 23, 1924—William A. Pneumococcus IV.

May 8, 1924—Joseph W. Pneumococcus IV.

May 18, 1924—Harry A. Pneumococcus IV.

July 2, 1924—Martha F. Pneumococcus IV.

November 13, 1924—Francis B. B. Influenza.

March 4, 1924—Adele S. B. Influenza.

March 5, 6, 7, 1925—Luther M. Pneumococcus IV.

May 14, 1925—Harry B. Pneumococcus IV.

May 23, 1925—Lucille J. Pneumococcus IV.

October 26, 1925—James S. Pneumococcus IV.

January 18, 1926—Jacob D. Pneumococcus IV.

April 8, 1926—Grant S. Pneumococcus I.

April 20, 1926—William W. Pneumococcus IV.

May 2, 1926—Sarah H. Pneumococcus II.

August 3, 4, 1926—Anna S. Pneumococcus IV.

October 24, 1926—Louis B. Pneumococcus, Group IV.

December 7, 1926—Luther E. Pneumococcus IV.

December 10, 1926—James S. Pneumococcus IV.

December 12, 1926—Jennie B. Pneumococcus IV.

January 7, 1927—Herman H. Pneumococcus III.

February 11, 1927—Hugh T. Pneumococcus (type ?)

April 21, 1927—James P. Pneumococcus II.

Of these forty-four (44) reports—two were of cases of influenza meningitis; one of pneumococcus, type I and II meningitis, two of type II or group IV meningitis, two of a typical type II meningitis, two of untyped meningitis, three of pneumococcus type I meningitis, six of type II meningitis, two of type III and twenty-four (24) of group IV pneumococcus meningitis. Meningitis due to the pneumococcus group IV, is by far the most common form, in this series of forty-four (44) cases.

Chalier and Puig (*J. de Med. de Lyon*, 8: 281-284, June 6, 1927)—reported four (fatal) cases of primary pneumococcus meningitis seen at the Red Cross Hospital in the winter (Oct.-Dec.) of 1925. The intraspinal, intravenous, and intramuscular use of antipneumococcus serum was without favorable results. He emphasizes the importance of the intravenous use of serum early along with the intraspinal treatment because of the presence of pneumococcemia in these cases. He believes, in these primary cases, the infection takes place through the blood, rather than through the rhino-pharynx. Some authors have demonstrated that there are lymphatic connections between the rhino-pharynx and the peri-cerebral spaces—but if the origin of pneumococcus meningitis ("primary") is rhino-pharyngeal, why is not pneumococcus meningitis much more frequent than it is, and why are so many of these pneumococcic cases free of rhino-pharyngeal involvement?

Netter—believes the pneumococcus enters the bronchial tree and passes into the blood in the alveoli of the lungs. This causes a pneumococcemia and the pneumococci then become localized in the brain and cord.

Mouriquand and Sedallian—(*Lyon Med.*, 138, 664-668, Dec. 5th, 1926)—report two cases in infants, in

which meningococci and pneumococci were associated from the beginning, in a double infection. The use of antimeningococcal serum cleared up the meningococci, but the pneumococci continued to be present in the spinal fluid. Optochin injections were ineffective against the pneumococci.

Netter and Salanier, and Mlle. Servet—reported similar cases—the pneumococci appearing after the meningococci, the pneumococcus infection being considered secondary in these cases.

Bloise and Castro—(*An. de Fac. de Med.*, Montevideo, 12: 148-160, Mch.-Apr., 1927)—among 22 cases of meningitis seen by them in (Jan.-July) 1926, there were five pneumococcus and one mixed meningococcus and pneumococcus meningitis cases. All these cases (in children) were fatal. They call attention to a case of pneumococcus meningitis reported by Morquio and Bonaba with a clear spinal fluid containing only a few cells but many pneumococci. They also mention the paper by Lafforgue on "Parapneumonic Pneumococcus Meningitis" with only slight symptoms, a clear fluid and moderate lymphocytosis, in which it was necessary to cultivate large amounts of fluid to obtain the pneumococci, as they were difficult to find on direct examination. This probably explains the meningeal reaction often described in pneumonia—they are probably mild and transitory forms of pneumococcus meningitis in which the pneumococcus, though present, does not for some unknown reason develop sufficiently to cause serious suppurative meningitis. In four of the cases reported by Bloise and Castro the spinal fluid showed pneumococci in pure culture, and in one case pneumococci and meningococci were associated. They believe the pneumococcus invasion in the mixed cases, is secondary to the meningococcus meningitis, probably because of propagation of the pneumococcus from the pharynx in these patients whose resistance is decreased; the pneumococcus invasion is said to be furthered by the use of antimeningococcal serum which is a good culture medium for pneumococci. They conclude there is no really effective treatment for pneumococcus meningitis.

Umberto Sala (*La Pediatria*, May 1, 1927)—reported a recovery from pneumococcal meningitis, in an eight months old nursing infant, following a single lumbar puncture and withdrawal of 20 c.c. of spinal fluid, and three intramuscular injections of 20 c.c., 25 c.c., and 20 c.c. polyvalent antipneumococcal serum.

Globus and Kananin, reported a recovery from pneumococcus (group IV) meningitis in a boy 15 years old, following lumbar and cisternal punctures, one intraspinal dose of antimeningococcal serum, and four doses (intravenously) of staphylococcus pyogenes—aureus vaccine.

Cabot's fatal case (*New Eng. Jour. of Med.*, No. 14011, Feb. 23, 1928), of primary (?) pneumococcus Type III meningitis occurred in a man 78 years old, who was treated at the Massachusetts General Hospital (Dec., 1927). He developed Cheyne-Stokes respiration, fever, stiff-neck and a positive Kernig. The patient's left eye (glaucoma) was removed, making a good operative recovery.

Fred W. Stewart—(*Jour. Exper. Med.*, Sept. 1, 1927), was able to cure two dogs of pneumococcal type I meningitis by the use of systematic lavage, optochin—Felton's 3000 unit antibody solution, and antipneumococcus—(unconcentrated) serum by the method of quadruple puncture.

Harkavy's patient, a married woman 57 years old, recovered from pneumococcus type I meningitis following the use of Felton's type I antipneumococcus serum intraspinally, intravenously, and intracisternally, and drainage.

Waterfield (Guy's Hosp. Report 78:90, Jan., 1928), reported a case of mild pneumococcal meningitis in a boy 2½ years old suffering from lobar pneumonia. The patient rapidly improved after lumbar puncture. This may have been a case of "meningismus" or "serous meningitis" complicating pneumonia, because the spinal fluid, while containing polymorphonuclear cells (80 per cent) and a reduction of chlorides, remained sterile on culture. No tubercle bacilli were found.

CONCLUSIONS

1. Pneumococcus meningitis has been reported more frequently during the past ten years.

2. Recoveries are not so rare as formerly thought to be the case. About 150 or 200 cases of recoveries are on record.

3. Pneumococcus meningitis may occur with or without pneumonia and with or without sinus or ear infections. So-called true "primary" cases have been reported.

4. Pneumococcus meningitis may be secondary to a meningococcus infection.

5. Pneumococcus endocarditis may complicate pneumococcus meningitis with or without pneumonia. A positive blood culture does not necessarily mean that the endocarditis or the meningitis is of pneumococcal origin. Cases of pneumonia with positive blood culture are more likely to develop meningitis and endocarditis as complications.

6. Recoveries from endocarditis due to the pneumococcus have been reported in the literature.

7. The early use of Fenton's serum, pneumococcus antibody solution, and selected chemotherapy, intraspinally and intravenously, with free cisternal and spinal drainage and lavage holds out the best hope for recovery.

8. A review of the literature of the world, and a report of twenty-five fatal cases are included in this paper.

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MENINGITIS

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The Doctor and His Cook*

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Out of the primitive healing art, wherein one man played the role of King, Priest, Magician and Medicine Man, has come the separation and differentiation of the duties and responsibilities of the physician, the surgeon, the dentist, the veterinarian and the pharmacist.

Out of the barber shop came the surgeon; out of the doctor's apprentice who stewed the decoctions, prepared ointments, pills and plasters, came the apothecary, familiarly dubbed the "Doctor's Cook"—now the pharmacist.

A modern writer has tersely designated the drug store as the "Service Station." Certainly, so far as the practice of medicine goes, the pharmacy is an all important service station. Wipe the drug store from our modern life, and the healing art sinks back to the primitive ages. In our economic system there is nothing to take its place in the distribution and dispensing of medicines. The manufacturer's smokestack is simply an extension of the pharmacist's backroom, and the physician's supply depot an off-shot of the drug shop.

For the welfare of humanity, the pharmacist should be maintained as the purveyor and distributor of medicinal agents.

Through the ages there run records showing the setting apart of the business and office of the apothecary. Even in the dark ages, rights, duties and responsibilities were imposed upon the apothecary by royal edict and by municipal license.

The historic School of Salerno, in the Middle Ages, licensed both physicians and apothecaries. A physician was forbidden to dispense medicine or to enter into any arrangement whereby he would obtain profit from their sale. The apothecaries made oath "to do all in their power to uphold the glory, ornament and majesty of medicine. To give no remedy without the authority of the physician, to avoid the practice of charlatans, and to keep no old or bad drugs in their stocks."

The annals of the past are filled with conflicts between the doctors and the apothecaries, which from our point of view seem foolish and humorous, but at times they became tragic. Strong accusations were made on both sides; verbal and solid missiles were thrown, and when professional men wore swords these were unsheathed.

The man on the street, and even the physician, is apt to judge pharmacy as a calling through a narrow, distorted vision. He calls to mind some small rundown shop, with a proprietor familiarly known as "Doc," who keeps a place that before the Volstead Act was a third rate saloon, and even now is a neighborhood loafing place. He judges pharmacies by the lowest type he can find, and fails to visualize the fifty thousand pharmacies of the land, or to sum up all the activities that belong to the calling, and from this make a composite picture of pharmacy as it really exists, and what it means to the community.

Code of Ethics

The practice of pharmacy is governed by a Code of Ethics formulated by the American Pharmaceutical Association, adopted and endorsed by practically every national, state and local Association and subscribed to by every student in pharmacy.

The clauses in this Code which refer to the relations of the physician and pharmacist are as follows:

The pharmacist even when urgently requested to do so should always refuse to prescribe or attempt diagnosis. He should, under such circumstances refer applicants for medical aid to a reputable legally qualified physician. In cases of extreme emergency, as in accident or sudden illness on the street in which persons are brought to him pending the arrival of a physician, such prompt action should be taken to prevent suffering as is dictated by humanitarian impulses and guided by scientific knowledge and common sense.

The pharmacist should not, under any circumstances, substitute one article for another in a prescription, without the consent of the physician who wrote it. No change should be made in a physician's prescription except such as is essentially warranted by correct pharmaceutical procedure, nor any that will interfere with the obvious intent of the prescriber, as regards therapeutic action.

He should follow the physician's directions explicitly in the matter of refilling prescriptions, copying the formula upon the label or giving a copy of the prescription to the patient. He should not add any extra directions, caution or poison labels without due regard for the wishes of the prescriber, providing the safety of the patient is not jeopardized.

Whenever there is doubt as to the interpretation of the physician's prescription or directions, he should invariably confer with the physician in order to avoid a possible unpleasant situation.

He should never discuss the therapeutic effect of a physician's prescription with a patron, nor disclose details of composition which should be discussed with the prescriber only.

Where an obvious error or omission in a prescription is detected by the pharmacist, he should protect the interests of his patron and also the reputation of the physician by conferring confidentially upon the subject using the utmost caution and delicacy in handling such an important matter.

Not every man obeys the Ten Commandments, or lives up to the famous "thirty-nine articles" of faith. Neither do physicians, lawyers, clergy nor pharmacists live wholly within the codes which govern their professions.

But thousands upon thousands of pharmacists, consciously or unconsciously live within their code as the spirit which guides their acts. They live the code because it is born in them, and they find in it safety and content. And this is true of the conscientious physician and the follower of other vocations.

Training

But few are aware of the forward trend that a pharmaceutical education has taken in our land in less than a generation. Educational methods and institutions devoted to pharmacy in the United States are rapidly assuming a status not equaled anywhere in the world.

In this effort the pharmaceutical associations and the colleges themselves have been the guiding spirit.

While the laws of the several States are not uniform in respect to licensing pharmacists to practice, the schools have raised the requirements for admission and graduation to a standard well comparable with other professions. A large number of the colleges are affiliated with universities, and confer academic degrees.

The courses of instruction have become standardized. The pharmacist is licensed by the State "not to simply act as a merchant with special privileges, but because he had assumed the responsibility for certain qualifications regarding the handling, sale, compounding and dispensing of medicinal substances—the same kind of scientific and mathematical ability that is necessary for success in any professional calling." (LaWall.)

Character, fitness and aptitude for the calling are made the fundamental basis for college entrance.

The trend of pharmaceutical training is that these who practice pharmacy shall qualify educationally and morally; that character tests are applicable not only to students and pharmacists, but to pharmacist as well, and that "pharmacy ownership shall be limited to those who are qualified by education and are observant of the obligations of pharmacy".

Education

An educational feature of recent origin, the value of which has yet to be demonstrated, is a combined curriculum in pharmacy

* Revised from an address read before the Medical Section of Rutgers University Club.

and medicine. This is a seven years' course—and an attempt to coordinate knowledge in the inter-related branches of medical endeavor.

Still another projected step is an attempt to coordinate pharmacy, laboratory service and medical practice in a curriculum which shall fit the student for hospital or clinical laboratory service.

Many pharmacists supply biological and clinical laboratory service as an adjunct to pharmacy. Such a step is of advantage to both medicine and pharmacy.

Laws

Pharmacists were the authors of the laws, now in force in this country, to regulate the sale of poisons, and to regulate the practice of pharmacy; pharmacists secured their enactment, and boards of pharmacy enforced them.

Pharmaceutical associations originated and sponsored the Harrison Law to restrict the sale of narcotics, and Government reports show that the violation of this law by pharmacists is so small as to be negligible.

Pharmacists urged the enactment of the Pure Food and Drug Law, and unitedly took measures to secure in the drug trade a complete compliance therewith.

Long prior to the passage of the Eighteenth Amendment, pharmaceutical associations had condemned the sale of intoxicants in the drug store, and long before the Volstead Act became a law, there were many pharmacists who had banished intoxicating liquors from their stores. Today there are thousands of pharmacies where a prescription for liquor could not be filled. They have refused to take out a license under the Act.

Pharmacists have steadfastly resisted all attempts to place the sale of intoxicating liquors in the drug store, and in return they have been burdened with the most obnoxious and burdensome regulations respecting the use of alcohol for tinctures and extracts, and for legitimate medical purposes.

Under the operation of the prohibition enactment, there arose bootlegging druggists, many of them were men who were formerly in the liquor business, and who tempted some weak pharmacist to join them in the unwholesome traffic. Likewise, there have been so-called physicians who joined with them, and conspired in breaking the law.

No calling—legal, clerical, medical or pharmaceutical, is free from unworthy members.

Patent Medicines

From the medicine man of the primitive races down to now, secret, occult medicines have held a place in human affairs. Kings, potentates, popes, governments, physicians, pharmacists, mountebanks—all sorts and conditions of men have exploited them, and the end is not yet.

We may remember that many of our well known drugs and compounds were once secret or patented. Fowler's Solution, Dover Powder, Paregoric, Cinchona (Jesuit's Bark) are a few examples. In our day Phenacetine, Aspirin, Vaseline, and many others, fall into the category.

Secret or patented medicines have been both a bane and a benefit to mankind. Under our enlightened laws, dangerous and harmful ones have gone out of existence; many that remain are of doubtful value, but are not dangerous except in the sense of deception and false security which influence the user.

This class of remedies can never be abrogated by law. In many States their sale is placed in the hands of licensed pharmacists. This seemed to be a wholesome provision—free trade in medicines of any kind would be injurious to mankind.

In the pharmacy, the sale of this class of compounds is under control as far as possible, safeguarded. Many wise pharmacists use their influence in guiding their patrons in the use of these agents. Unwise pharmacists, on the other hand, exploit them at cut rates, and allow their names to be associated with questionable nostrums. Through a sort of righteous compensation, such practices often lead to disaster.

Counter-Prescribing

Age-old is the recrimination against the pharmacist for counter-prescribing and against the doctor for dispensing his own medicine. Both charges have been exaggerated to the point of silliness.

The odds in this case are in favor of the doctor, as doctors, outnumber pharmacists three to one. Three doctors can do more financial harm to one apothecary by dispensing, than one pharmacist can by prescribing. But both practices are on an unsound basis, morally and financially.

The doctor probably loses financially on the medicine which he dispenses; the pharmacist would gain more financially by devoting the time necessary to prescribing over the counter—to selling goods.

The poor patient is the greatest loser! He suffers from a restricted materia medica, dispensed by a physician not skilled in compounding. He suffers by an incorrect diagnosis and a wrong treatment, made by a pharmacist who is not competent to treat disease.

The sooner both practices are given up, the better for the progress of the healing art.

As far as the modern pharmacist is concerned, from his entrance into college to his graduation, he is enjoined by his code and by his instructors to eschew counter prescribing. Nowhere in his career does he learn the art of diagnosis or therapy.

Commercial

Constructive criticism is always in place, and nowhere more so than in the healing art. With respect to pharmacy it is needed and always welcomed by its votaries.

It has however been quite the fashion, in print, publicly and privately, to "Knock" pharmacy. Even the medical journals do not scruple to lay real and imaginary evils at the pharmacist's doorsill.

In screaming headlines we read of "Bootlegging Druggists" and "Dope Peddling" Pharmacists, wherein the entire fraternity is classed as criminals and law breakers.

Very true is the statement that the present day pharmacy is crowded with merchandise other than drugs. This condition is the outcome of our social environment. We live in a utilitarian age. The spirit of gain must rule the life of the preacher, the doctor, the lawyer, the pharmacist—or they cannot continue to exist. The dollar is the life raft on which we keep afloat.

With the pharmacist, the constantly increasing costs, rent, taxes, and expense reduce profits to the vanishing point, and he reaches out for safety. Pharmacy could not exist today except under good merchandising methods.

It is true that in many instances the merchandising practices pursued in the drug store have been illtimed and over-done. Gradually, however, the situation has clarified itself and become balanced, and the good merchant is the foundation of a good pharmacist.

Whatever else he may be, the pharmacist is a professional man—pharmacy is a profession.

Professor C. B. Jordan, director of the School of Pharmacy of Purdue University, asserts that the calling of pharmacy meets the seven tests which characterize medicine, dentistry, law and the ministry, which in his opinion, distinguish the professional from the non-professional workers of this country. The seven qualifications of a profession are:

"The membership is selective and demands a training and competency far beyond that required of the ordinary individual.

"The practice of a profession contributes to and is necessary for the public welfare.

"The practitioners of a profession are inspired by a desire to serve, and not by the sole desire of personal gain.

"A profession has a well defined code of ethics.

"A profession has an organization or organizations that inspire its members to abide by its code of ethics.

"A profession is recognized in the commonwealth by laws that protect the public from incompetency.

"A profession has a literature.

Tie-Up

A noted savant, possibly afflicted with a real or imaginary digestive malady, married his cook as an insurance in maintaining proper diet.

Possibly if there was a closer tie-up between all branches of the healing art, good would follow. The physician, the surgeon, the nurse, the dentist, the veterinarian, the health officer, the pharmacist—each has a distinct professional field, and yet they are interdependent upon one another.

Unfortunately, upon all of them there have grown excrescences foreign to professional ideals, and hindrance to true advancement.

A hospital slogan reads: "The welfare of one is the concern of all."

False practices, questionable cults and quackery, injure the physician, the pharmacist, injure all who are engaged in the healing art, and more especially the community which they serve.

These evils cannot be corrected by unwarranted and ignorant criticism and recrimination. Such a course leads nowhere. Reform can only come about by intelligent, active cooperation.

The physician can help his pharmacist by advice and assistance; this the pharmacist can return in full measure. But greater than all would be a full cooperation fostered by associated action, leading to closer relation and correlation of all branches of medical service.

Pharmacy Week

Through international accord one week in the year has been set apart to be observed as Pharmacy Week. For 1928 this week is set for October 14-24.

This Pharmacy Week movement, unlike many other weeks is not intended to sell more soda water, cosmetics and what not. Its primary purpose is to bring to the attention of the medical and allied professions as well as the public the place and purpose of pharmacy in human affairs.

During this period thousands of pharmacists will, through exhibits or otherwise, give prominence to professional pharmacy. In the few years in which Pharmacy Week has been observed in this country, its influence has been notable. It has tended to build and sustain the confidence and cooperation of the Medical and Surgical and allied professions. It has helped to convince the public that the drug store is primarily a professional institution.

Pharmacy Week has stimulated the restoration of the drug store to its proper place in the community. It has had a notable effect in promoting the ethical side of the calling. This is witnessed in the increasing number of drug stores who stress the prescription and Pharmaceutical phase of their stores. "Ethical" drug stores and "Prescription" stores are assuming prominence.

Pharmacy week has fostered wise legislation as affecting the sale of drugs. It has promoted Pharmaceutical Education, it has widened the knowledge and strengthened the confidence of the public in the true status of Pharmacy.

The medical profession may well join with the followers of pharmacy in their efforts to elevate and sustain their professional ideals. The advancement of Pharmacy means the advancement of the entire healing art. It is to be hoped that Pharmacy Week and allied movements will bring about still closer relations between the Doctor and his Cook.

The Dangers of a "Mixed" Diet

It is not unusual for physicians and hygienists to convey the reassuring message, especially to those inquiring about diet fads and particular lines of diet, that a "mixed" diet is the safest when one is in doubt.

Probably most people understand by a "mixed" diet one that includes meat and "something else." This is a reflection of the old conflict between the vegetarian and the mixed feeder. Among scientific dietitians there is no such conflict. Regardless of whether a food comes from the vegetable or animal kingdom, the scientific dietitian considers its components and whether or not it contains the necessary balance of mineral, vitamins, bulk, protein, fat, and carbohydrate.

A mixed diet is all right if the mixture is all right. But a mixed diet is not necessarily a safe diet. It is probable that enough stress has not been laid on this danger. We are often warned against narrow or monotonous diets; but that a diversified

diet may nevertheless be grievously deficient is a truth that should have wider acceptance.

McCollum (*Food, Nutrition and Health*) has called attention to the fact that in America the diet consisting of cereal grains, tubers, roots, fruits, and meats may be fairly accurately described by calling it the meat, bread, potato, and sugar type of diet. While he does not maintain that the marked physical defects during the growing period in young rats on such a diet would be paralleled in children, nevertheless careful studies made of the inmates of orphanages and other schools and institutions, have shown that on dietaries theoretically insufficient there is actually a low state of nutrition and a marked condition of physical deficiency. In one orphanage observed, the diet consisted essentially of white bread and a soup made of meat, barley, potatoes, carrots, parsnips, celery, cabbage, peas and beans. Here we have an apparently widely diversified diet, including meat, cereal and vegetables of various kinds. Nevertheless, children fed on this diet were suffering from severe grades of bone defects, and were pale, with flabby muscles, poor posture, and the typical tired expression seen in malnourished children generally. A quart of milk a day added to the diet of these children resulted in more rapid growth and a definite improvement in physical condition.

The cereal grain, tuber and sugar diet requires the addition of calcium and of foods containing vitamin A; also, oftentimes, the addition of a suitable protein. This is supplied by milk and the leaves of certain vegetables. The term "protective foods" has been applied to these food factors, inasmuch as they safeguard the diet from vitamin and calcium deficiency.

Milk is highly important in the diet of the growing child, because it may be difficult to include sufficient fruits and green vegetables to cover all the vitamin and mineral requirements. But it would be a mistake to consider milk a complete food for the growing child.

Certainly the mixed diet is the best kind of a diet provided, as we have said, that the mixture is right. And this mixture should include milk, leafy vegetables, fruits, whole cereals, and potato. Probably most children and adults would be better off with less sugar. Another common fault in diet is excess of salty and highly seasoned foods. Such over-indulgence often reflects lack of vigorous appetite. Among middle-aged people abstemiousness in the use of salt is highly desirable in sparing the circulation and kidneys. With an abundance of milk, meat is not a necessity in the diet. Meat will not take the place of leafy vegetables.

McCollum says that nothing could be more striking than to compare the effects of a cereal mixture on the one hand with the same cereal mixture containing 25 per cent of a flour made by grinding to a powder some wholesome edible leaf, such as clover leaves, celery leaves, alfalfa leaves, turnip, beet, radish, or spinach leaves. The animals receiving the cereal and leafy mixture will outgrow the others and present a remarkable contrast to the extreme runtness and inferiority of the cereal-fed group.

A tradition has been built up that cereals are more essentially health foods than any other type of food. This is not supported by modern scientific evidence. Whole cereals are of value in the diet but too much reliance upon cereal food may result in malnutrition.

It has been shown many times among the population of small animals that the span of life within a certain limit can be made anything desired. That a profound influence can be exerted upon the growth of children and the maintenance of health in adult life through more intelligent regulation of diet is without question. And yet, as we have said many times, there is no one-track road to health. Even a sound inheritance and practically perfect diet regulation cannot absolutely exclude pathological accidents such as infection and injury from environmental strain.

It was shown in McCollum's studies that mother rats on an insufficient diet became nervous and irritable and actually destroyed their offspring. Domestic infelicity among humans may arise from faulty nutrition. On the other hand, faulty mental hygiene may be the original cause of insufficient food intake and indifference toward the diet; and thus we have a vicious circle.

History of Radium

The use of radium as a therapeutic agent was discovered by accident. The French physicist, Becquerel, it is stated, put some tubes containing radium in his pocket and carried them about with him for some days. He found that the radium had burnt his skin. So he discovered that radium is capable of producing an inflammatory and, if continued long enough, a destructive effect on the normal skin—effects that are similar to the now well-known burns which may follow the incautious use of x-rays. This phenomenon suggested to a man of fertile imagination—it has been stated that the man was Besnier—that the rays might be utilized to kill certain cells which are considered harmful to man.—*The Lancet*.

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Repeal of the Thirteenth Amendment in the Interest of Public Health and Social Progress

Article xiii

Section 1

Neither slavery nor involuntary servitude, except as a punishment for crime, whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.

Section 2

Congress shall have power to enforce this Article by appropriate legislation.

Repeal of the Eighteenth Amendment and modification of the Volstead Act are being seriously proposed and discussed, and the advantages that it is alleged would accrue from such alterations in our fundamental law are claimed by some to outweigh those attributed to the present order of things.

It is therefore in order to discuss the possible advantages of similar alterations of other parts of the Constitution properly to meet new thought and new conditions.

What advantages, for example, would presumably result from the repeal, perhaps at some future time, of the amendment abolishing slavery, with a consequent regimentation of the country's slaves; and who would constitute the slaves, and be formally registered and utilized as such?

We may say that, given the desire and will on the part of a large majority of our electorate, such a repeal and enabling act would be just as feasible in the case of the Thirteenth Amendment as in that of the Eighteenth Amendment, since the Constitution itself

provides for steps whereby any part of that instrument may be modified by the representatives of the people, though naturally, and properly, ill-advised action is carefully guarded against and well-advised action made to hang upon overwhelming opinion and power.

It is in order to point out that such a repeal as we have suggested would not really be so radical as might appear upon first thought, since the amendment abolishing slavery merely freed a class from a particular type of servitude but was not particularly successful, practically speaking, in doing away with human bondage of one sort or another, despite our pretenses, any more than the Eighteenth Amendment has been successful in doing away with all forms of alcoholism. Only by hypocritical equivocations can we deceive ourselves on this point. The amendment abolishing slavery has been nullified just as surely as the Fourteenth, Fifteenth and Eighteenth, and a vast bootlegging system has been elaborately built up to serve a ruthless cupidity and rapacity, with a euphemistic nomenclature to serve as a smoke-screen. One is exceedingly naive who supposes that the only human commodity bought and sold is the baseball player. Generally speaking, the "market" now simply buys and sells its wage slaves *en masse* instead of individually. We have a clumsy and cruel system of slavery now but realists can see that it could be regulated and reformed if recognized and legalized in the manner hereinafter outlined.

There is no reason whatever why Negroes as a race should ever again enter a state of slavery. The "involuntary servants" under the system in contemplation should obviously be drawn from among the feeble-minded of all racial groups.

The old slaveholders enjoyed an economic advantage over their competitors that was unfair. Under a scientifically controlled revival of slavery there could be a rational distribution of the new type of labor without jeopardy to other types. It could, in fact, be made to stabilize and improve conditions in the labor field at large. Now a liability and a nuisance, the class in question would become a productive, public asset. For example, under the new order the changed labor conditions which may be expected ultimately to result from continued restriction of immigration and the prospective lowering of the birth rate could be adequately met.

Just as the old slave was contented, well housed and fed, kindly treated, free from venereal disease, alcoholism, drug habits and tuberculosis, and generally healthy, so the new slave might be made equally happy. This phase of the subject should interest public health experts, who are hampered at present in their efforts further to improve the people's health as a whole because of the freedom of our least intelligent folk to nullify such efforts and so jeopardize the health of others.

It would seem that the formal reinstitution of slavery, scientifically administered, would solve many of our socio-economic problems, and if wars must still be fought, why not by our docile defectives, rather than the pick and flower of our youth?

The feeble-minded cohorts could be colonized, mated, reproduced intensively (they are more prolific than normal types), made happy with movies, tabloids, sensational preaching, canned music, grandiose titles and gaudy decorations, and made to believe anything considered desirable by propagandists themselves subject to censorship. This would make our corner of the world safe for intelligence.

To deal in this constructive manner with the feeble-minded is no more of a deprivation of rights and a violation of social morals than the intensive sterilization of this entire class about to be instituted by a modern state

—New Zealand, or the drafting of soldiers in time of war.

It will be objected by sentimentalists that human slavery is now unthinkable, and that we can not return to it in any form. This is really an odd point of view when one reflects how the youth of the world have been fed to the Moloch of war and how served up to the Minotaur of profit by these very folk. As a matter of fact, our defectives may be said to constitute a subhuman class, in so far as they represent atavistic throwbacks in the scheme of evolution, as far removed from the normal modern man as the Neanderthal race. Moreover, we should not be returning to slavery, only regulating it, just as, according to the "wets," we shall not be returning to alcoholism in the case of a repeal of the Eighteenth Amendment, but to better regulation of the liquor industry. Neither slavery nor alcoholism, let it be repeated and remembered, has actually been abolished or lessened by Constitutional amendments.

The terms slavery and involuntary servitude, under the proposed dispensation, might well become "involuntary (or compulsory) service."

But have we progressed far enough along scientific lines of social science and practice to administer both slavery and the liquor industry efficiently and without continuing in the Constitution the grotesque evasions known as the Thirteenth and Eighteenth Amendments?

Appeals to reason, no matter how valid, have little to do with the disposition of so-called political issues. It is probable that the repeal of the Eighteenth Amendment is no less difficult than would be that of the Thirteenth. What we said in the fourth paragraph of this editorial regarding the feasibility of repeal does not differ in meaning from this conclusion, which ought to enlighten the "Wets," mollify the "Drys," and let the Abolitionists rest quietly in their graves.

Staff Accessions

THE MEDICAL TIMES continues, happily, to add distinguished names to its list of Contributing Editors. During 1927 Dr. D. G. Macleod Munro, of London, eminent authority on tuberculosis, joined our staff, while during the present year Dr. Gabriel Bidou, of Paris, noted for his work in the functional recuperation of paralytics, and Dr. Joseph Rivière, also of Paris, distinguished in the field of physical therapy, became Contributing Editors. These accessions from England and the Continent internationalize the spirit of the journal, which is as it should be in science. And we have also been fortunate in the recent association of Dr. Malford W. Thewlis, of New York, with the MEDICAL TIMES. His career as an independent editor, internist, authority on geriatrics, Government expert, and writer of one of our textbook classics, is known of all medical men.

Association of Pylorospasm and Thymic Enlargement in Children

Mitchell I. Rubin, Chicago (*Journal A. M. M.*, May 26, 1928), discusses the association of pylorospasm and thymic enlargement in children. He reports nine cases. In all of thirteen nonselected consecutive cases of pylorospasm, an enlarged thymus was shown by the roentgenogram. More than half these patients had symptoms suggestive of thymic enlargement, as breath holding spells and cyanosis. Five cases of this series were treated with the roentgen ray alone, and all showed improvement.

Medical Movies

Few films of which healthiness is the main topic can possibly run for two or three hours; medical matters might appear as subsidiary sections much in the same way as the topical pictures of current events or perhaps better still as bye points in an ordinary tale; Charlie Chaplin could do as much with "drink more milk" as with any other slogan.—*The Lancet*.

Miscellany

From the Patient's Viewpoint OPERATION

You are carried in a basket,
Like a carcase from the shambles,
To the theatre, a cockpit
Where they stretch you on a table.

Then they bid you close your eyelids,
And they mask you with a napkin,
And the anesthetic reaches
Hot and subtle through your being.

And you gasp and reel and shudder
In a rushing, swaying rapture,
While the voices at your elbow
Fade—receding—fainter—farther.

Lights about you shower and tumble,
And your blood seems crystallising—
Edged and vibrant, yet within you
Racked and hurried back and forward.

Then the lights grow fast and furious,
And you hear a noise of waters,
And you wrestle, blind and dizzy,
In an agony of effort,

Till a sudden lull accepts you,
And you sound an utter darkness . . .
And awaken . . . with a struggle . . .
On a hushed, attentive audience.

AFTER

Like as a flamelet blanketed in smoke,
So through the anesthetic shows my life;
So flashes and so fades my thought, at strife
With the strong stupor that I heave and choke
And sicken at, it is so foully sweet.
Faces look strange from space—and disappear.
Far voices, sudden loud, offend my ear—
And hush as sudden. Then my senses fleet
All were a blank, save for this dull, new pain
That grinds my leg and foot; and brokenly
Time and the place glimpse on to me again;
And, unsurprised, out of uncertainty,
I wake—relapsing—somewhat faint and fain,
To an immense, complacent dreamery.

—W. E. HENLEY.

Our Medicine Men

The other evening, after an unusually crowded day, I escaped for a healing hour into the lore of the distant civilization of ancient Babylon.

I found my interest caught by the famous Code of Hammurabi, that record of civil and religious laws that dates about 2,000 B. C.

I was particularly interested in the provisions that related to the regulation of the medical profession, for a few evenings before I had re-read that singularly engaging volume of Sir William Osler on "The Evolution of Modern Medicine."

The Code of Hammurabi indicates that in ancient Babylonian days the medical profession was highly organized, its practice regulated in great detail, a scale of fees legally determined, and penalties levied for blundering practice.

I quote two paragraphs from this ancient code:

"If a doctor has treated a gentleman for a severe wound with a bronze lancet and has cured the man, or has opened an abscess of the eye for a gentleman with the bronze lancet and has cured the eye of the gentleman, he shall take ten shekels of silver.

"If the doctor has treated a gentleman for a severe wound with a lancet of bronze and has caused the gentleman to die, or has opened an abscess of the eye for a gentleman and has caused the loss of the gentleman's eye, one shall cut off his hands."

In modern America we do not see handless doctors going about as walking advertisements of their own inefficiency, but there are modern substitutes for these stringent regulations that the Code of Hammurabi imposed upon the medical profession.

The medical profession seeks to perfect its ethics and its skill by self-imposed regulations.

Against these paragraphs from the Code of Hammurabi let me place the fellowship pledge of the American College of Surgeons, a document that deserves to be known more widely:

"I pledge myself to pursue the practice of surgery with thorough self-restraint and to place the welfare of my patients above all else; to advance constantly in knowledge by the study of surgical literature, the instruction of eminent teachers, the interchange of opinion among associates, the attendance on the important societies and clinics; to regard scrupulously the interests of my professional brothers and seek their counsel when in doubt of my own judgment; to render willing help to my colleagues and to give freely my services to the needy. Moreover, I pledge myself, so far as I am able, to avoid the sins of selfishness, to shun unwarranted publicity, dishonest money-making and commercialism as disgraceful to our profession; to refuse utterly all money trades with consultants, practitioners, or others; to teach the patient his financial duty to the physician and to expect the practitioner to obtain his compensation directly from the patient; to make my fees commensurate with the service rendered and with the patient's rights; to avoid discrediting my associates by taking unwarranted compensation."

This self-regulation of a profession from the inside is a higher achievement and a sounder guaranty to the public than the Babylonian regulation from the outside.

—GLENN FRANK in the *Evening World*.

What Is Youth?

A few days ago I received a letter from an old fisherman friend in the eastern part of the State, in which he says, "Yesterday was my eighty-second birthday, and I celebrated by going fishing, and Grandson Jim and I were out all day, and brought home a full basket."

Also about the same time I received a letter from a friend in Georgia, saying, "I was seventy-eight years old last week, and a great-grandmother, but I feel as young as I did thirty years ago. I cannot dance quite as lively as I could, but I am going to the races next week for three days, and will make old Father Time forget me for quite a while yet."

Such letters as these naturally cause one to muse and ponder on what constitutes "old age" and why today we find so many young-old men and women.

In other words, what is youth, and what old age?

Youth must not always be reckoned by term of years. It is not so much a time of life, as a state of mind. We sometimes see a youth of seventy, and an old man of twenty.

It is not a matter entirely of red cheeks, and nimble feet, and quick hands, but a matter of lively thought,

vivid imagination, and quick tongue, inspired by an active and resilient mind, a mind that refuses to lay down under trouble or under weight of years.

Youth is a matter of temper and will, not of physical endurance, and good digestion. Young-old people retain their courage, they still have their early love of adventure, they are always ready to give up the comforts of the fireside for the pleasure of a new experience. This is the reason we find so many old fishermen who are still young in everything but counted years.

They have never lost their love of adventure, they are always ready to go a little farther to see what is around the next corner, or over the hill to the next brook. Such a temperamental man as this is as apt to be seventy, as twenty years old, for growing old is not simply living a great many years. One gets old only when he loses his illusions, ceases to dream of the future, no longer plans for the years ahead, but is content to eat three meals a day, find comfort by the fireside, and rest his head early on the pillow at night.

Years may wrinkle the skin, dim the eye, and dull the ear, but only the loss of love of adventure, and youthful enthusiasm, can wrinkle the soul.

A man of seventy is just as youthful as the boy of 12 if he has in his heart the lure of wonder at what is coming next, the eagerness for that which is just beyond his vision, the daily desire to learn something new and the pleasures to be found in the game of daily life.

One is as old as his fear and his doubt, and as young as his faith and his hope. I often wonder what a place this world would be in which to live if there were no young-old people here, with their wise old eyes looking back over the traveled roads behind them, knowing that the younger generations so confident in their own ability to solve their daily problems will have to travel the same hard paths, and who laugh when the young-old man says to them, "Never mind, son, the worst is yet to come, but no matter how hard the road, hang on to your imagination, climb on top of the next hill, try a new kind of bait, never give up your youthful hope."

When you lose these, then you are ready to lie down and die.

—R. M. Griswold, M.D.—In *Hartford Daily Courant*.

How Long May Man Live With Obstructive Jaundice?

Owen H. Wangenstein, Minneapolis (*Journal A. M. A.*, May 26, 1928), reports the case of a patient who was admitted to the hospital with a profound icterus of more than three and one-half years' standing due to mechanical obstruction in the common bile duct. Exploratory laparotomy was done. The liver was a dark olive green, and its surface was somewhat irregular. The liver did not appear to be enlarged. An attempt was made to find the extrahepatic bile ducts, but they could not be demonstrated. The abdomen was closed. Death occurred five days after the operation. The postmortem examination was limited to the abdominal incision. The extrahepatic bile ducts were apparently completely obliterated. When the duodenum was opened, a fistulous communication appeared to go out from a small ulcer on the superior duodenal wall to the porta hepatis, but ended blindly without any connection with a bile duct. A probe introduced into the papilla of Vater could not be passed more than 1 cm. Microscopic examination of the liver showed marked atrophy of the liver parenchyma, with connective tissue replacement and proliferation of the bile capillaries. The most interesting feature about this case, however, is that for more than three years the patient had continued in fairly good health despite a most intense jaundice, and was able to do light household tasks.

Terminal Disinfection

The part that terminal disinfection plays in allaying public anxiety unjustifiably is almost as deleterious as any of its other evils. The knowledge that a ritual which will clear up all trace of the disease is to be performed at its end undoubtedly leads to the neglect of just those simple precautions which, taken during the course of the illness, would do away with even the hypothetical need for terminal disinfection.—*The Lancet*.

The Physician's Library

Syphilis. By Henry H. Hazen, A.M., M.D., Professor of Dermatology and Syphilology, Medical Department of Georgetown University, etc. St. Louis: The C. V. Mosby Company. 1928. Price \$10.00.

This is the second edition of Professor Hazen's well known treatise on the etiology, pathology, symptomatology, diagnosis, prognosis, prophylaxis and treatment of lues. Since civilization has been wittily said to be syphilization, and since "to know syphilis is to know the entire domain of medicine," a good book of this compass—643 pages—serves its purpose well; it is comparatively small, well illustrated (165 illustrations including 16 figures in colors), authoritative, sufficiently comprehensive for all practical purposes, and attractive in style. In the first edition the author had the benefit of about fourteen eminent collaborators and has now himself rewritten a number of the chapters and sections and revised all other parts of the book. There is an up-to-date bibliography and a good index. The practitioner will find this book of the utmost value to him.

Brain and Mind, or, the Nervous System of Man. By R. J. A. Berry, M.D., F.R.C.S., F.R.S., Edin., Dean of the Faculty of Medicine and Professor of Anatomy in the University of Melbourne, etc. New York: The Macmillan Company. 1928. Price \$8.00.

This book aims to integrate psychology with biology. It teaches a psychology based upon behavioristic, biological, physiological, psycho-pathological and sociological foundations. The structural details upon which depend all forms of mentality—normal and abnormal—are given thorough consideration, in fact the major portion of the book is given over to fundamentals. Having laid this very firm foundation, the author proceeds, in the last few chapters, to develop his point that many lunacies, delinquencies and everyday inefficiencies are due to underdevelopment of the brain, and that the condition consists in a diminution of the cortical neurons, particularly those of the pyramidal supra-granular layer, whose functions are those of inhibition and control. He thus gives us a structural basis for many aberrations, and adduces a sufficiency of microscopic evidence. It is a book which the psychologist, the psychiatrist and the educationalist will find most enlightening. The author is of that notable Australian group of workers who have done so much to advance modern medical science.

Blood and Urine Chemistry. By R. B. H. Gradwohl, M.D., and Ida E. Gradwohl, A.B. St. Louis. C. V. Mosby Co., 1928. Pp. 542.

The authors have succeeded in making this book extremely practical. They go into detail about the various methods of examination. There are 117 illustrations and four colored plates. Those of urine color reactions are of great help. Basal metabolism is thoroughly considered. The third part of the book is devoted to the interpretation of blood chemical findings. All in all it is one of the best books on this subject we have seen.

The Examination of Patients (Second Edition.) By Nellis B. Foster, M.D. 392 pages. Philadelphia and London. W. B. Saunders Co., 1928. \$4.50.

Three hundred and ninety pages of valuable text written by a good clinician. Foster covers his ground well; like Cabot he never uses two words when he can find one. The book is well illustrated. Unlike many works on clinical medicine, Foster dips enough into the specialties to give the general practitioner a working knowledge which is necessary.

The Healthy Child

A very simple statement will show to a certain extent the degree of physical health and development which may be acquired by a large majority of children.

Bright, clear eyes with normal focus and movements.

Unobstructed nasal breathing.

Clean, moist tongue.

Well formed and well enamelled teeth.

Mucous membranes definitely pink.

Subcutaneous tissue plentiful.

Muscles firm and strong.

Shoulders level; chest broad and deep, with good expansion.

Straight limbs and strong joints.

Arches of feet strong and limber.

Inner border of foot straight from heel to tip of great toe.

Weight suitable for height and age.

Good posture.

Alert, happy expression.

Prompt, efficient muscular coordination.

Bodily repose.

Physical and nervous endurance.

These briefly are indications of ideal health and development.

Public Health

Is the Public Health Nurse a Carrier of Infection?

There could not be a more convincing and dramatic demonstration of the conquest of a health department than that described by Mrs. Kathryn Schulken, Director of the Denver Visiting Nurse Association, in a paper presented at the last biennial meeting of the National Organization for Public Health Nursing. Mrs. Schulken believes that in adopting a generalized nursing program the first step is to perfect technic in the care of communicable diseases. The plans were developed with a medical advisory committee of leading local physicians. But before the complete reorganization of the work could be effected, the city was swept with a smallpox epidemic. The visiting nurse was required to give care to some of the most virulent types and still carry on the work in her district. After the epidemic had been controlled a member of the health department admitted that they had been so doubtful of the proposed program that they had kept a vigilant eye on the visiting nurse to trace cross-infection to faulty technic. But the nurses won out and the city's next budget carried a subsidy for the Visiting Nurse Association. Now the city is increasing the subsidy. The health department nurses who had carried on the instructive work in communicable disease cases were assigned to other duties and the visiting nurses who entered the home to give bedside care made the most of their opportunities to teach. Mrs. Schulken adds, "Physicians who had previously given very little consideration to our work now greatly appreciate this new service. They call on us for their cases, and are our strong supporters."

This question deals with the generalized program of the health department nurse as well as the nurse giving bedside care. In San Joaquin, California, where the nurse is assigned to a given territory by the health officer of that district, she is expected to do all types of public health nursing work, including infant and maternal welfare, school visiting, tuberculosis visiting and communicable disease control. During the 2 years that the work has been organized the general staff made 53,000 visits, more than 22,000 being for communicable disease control. Dr. Sippy states that there is not even the suspicion of any communicable disease transmitted by the nurse during this period.

Dr. Hastings of the Toronto Health Department believes there is no reason even to suspect that a nurse at any time conveyed communicable disease from one home to another, although the nurses in his department are carrying on a generalized public health program, looking after communicable disease as well as other cases. "It is unnecessary," he claims, "to say, of course, we observe the necessary precautions of disinfecting before leaving a case and going to another."

Dr. Louis I. Harris, Chief of the Bureau of Preventable Diseases, New York City, reports that periodic investigations have been made at the height of the season to determine whether the nurse doing generalized communicable disease work spreads diphtheria while taking terminating cultures. These nurses may go to scarlet fever patients. This, of course, is one of the most intimate contacts, and no evidence has been found of cross-infection. Studies of the more intimate relation of the physician and patients were made to ascertain whether the medical men are agents, which showed only rare instances of cross-infection. Dr. Harris believes that while physicians are less disciplined in technic than nurses, it is a question not of function but of how intimate the contact, the intermediate transmission of infection being negligible.

Mary S. Gardner of Providence, R. I., says that Dr. Chapin feels that it is quite safe for her staff, following proper precautions, to care for contagious diseases, laying special emphasis on the excellent training her nurses have had in communicable disease technic.

Is not then the crux of the whole discussion, not a question of statistical evidence, since health officers and visiting nurse directors say their records are clear, but a question of technic?

In his book, *Sources and Modes of Infection*, Dr. Chapin devotes one very interesting chapter to "Contact Infection." He points a finger of scorn at the hospital which struggles to introduce the French cubicle system in its wards and blindly allows its physicians and nurses without washing their hands to pass from cubicle to cubicle, handling patients and feeling pulses. He reports a visit to a private patient where the physician in charge of the case failed to wash his hands until forced to follow the example of the consultant. He finds that even leading medical men are inconsistent in their disregard of good technic in little things, such as a certain well-known human custom of moistening the thumb to turn the pages of a convention paper.

What can be said for the chief of a health department who refuses to allow the visiting nurse, in her washable uniform with a fresh towel and liquid soap in her ever-present bag and with years of visiting nursing technic drilled into her, to go into a home where there is smallpox or scarlet fever, and yet